TIND CINIT

Fractions

» Concept 1: Composing and decomposing fractions

» Concept 2 : Comparing fractions

» Concept 3: Multiplication and fractions

E P Fast Fact

Newborn babies spend $\frac{2}{5}$ of a day sleeping.

School-age children sleep for $\frac{\underline{\mathcal{S}}}{\underline{\mathfrak{N}}}$ of a day.

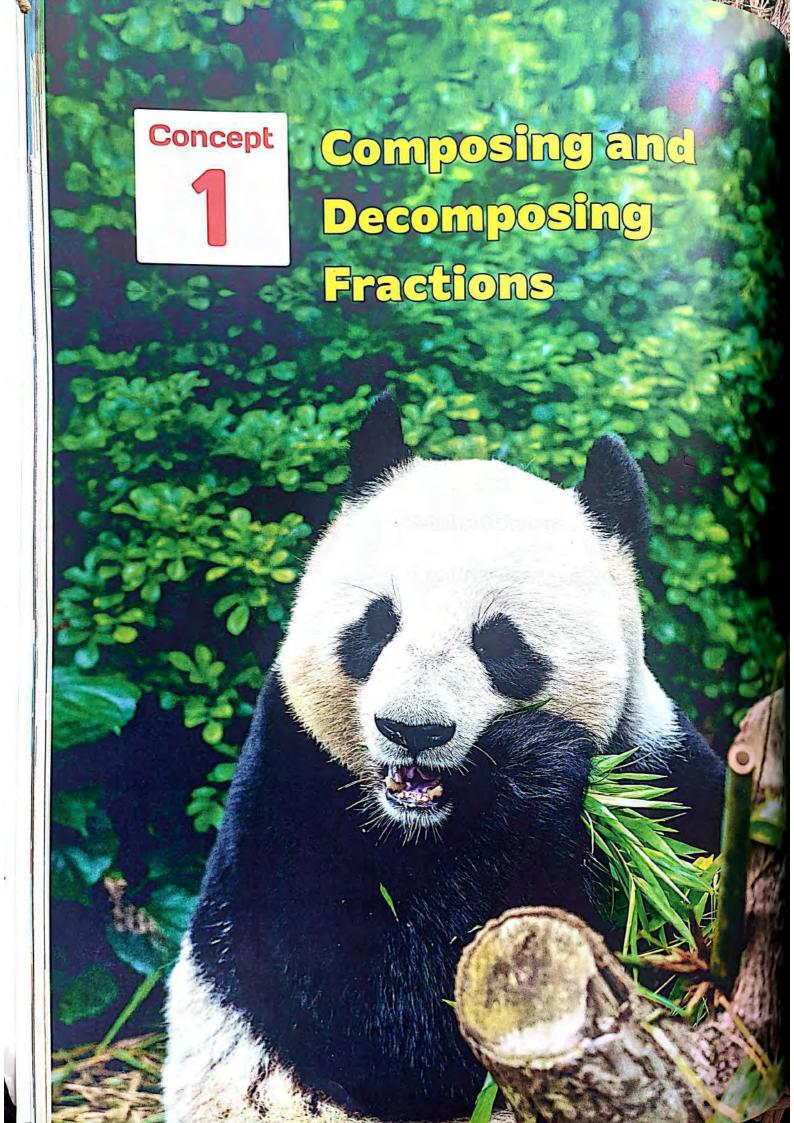
Adults sleep for $\frac{4}{4}$ of a day.

Which age group spends the least

time sleeping?

Which spends the greatest time?







Concept Overview

In concept 1:

Composing and Decomposing Fractions, students work with unit fractions as a foundation to compose and decompose other fractions. Students represent larger fractions by adding up smaller ones. They move beyond one whole to begin an exploration of improper fractions and mixed numbers. Students add and subtract fractions, mixed numbers, and whole numbers by finding and using like denominators.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 1	9-1 Let's Build It	Compose - Denominator - Fraction - Numerator - Unit fraction	 Students will define unit factions. Students will identify unit factions. Students will compose other fractions with unit fractions.
	9-2 Break It Down	Decompose - proper fraction	Students will decompose factions into unit factions.
	9-3 Break It Down Again	Compose - Decompose - Unit fraction - Whole	Students will represent fractions with repeated addition and subtraction of unit and other fractions.
Lesson 2	9-4 All Mixed Up	Denominator - Equivalent - Improper fraction - Mixed number - Numerator - Proper faction	 Students will define mixed numbers. Students will define improper fractions. Students will explain how mixed numbers and improper fractions relate to unit fractions.
Lesson 3	9-5 Pieces from the Whole	Review vocabulary as needed.	Students will add and subtract fractions and whole numbers.
	9-6 Adding Mixed Numbers	Mixed numbers	Students will add mixed numbers with like denominators.
37	9-7 Subtracting Mixed Numbers	Difference - Minuend - Mixed numbers - Subtrahend	Students will subtract mixed numbers with like denominators.

Lesson



- 9-1 Let's Build It
- 9-2 Break It Down
- 9-3 Break It Down Again

Remember

Unit fractions and proper fractions

Amal cut a pizza into 8 equal pieces. She ate 1 piece. Bassem ate 3 pieces. What fraction of the pizza did each one of them eat?

- Amal ate 1 piece of 8 equal pieces.
- The fraction of the pizza she ate = $\frac{1}{8}$ numerator denominator
 - $\frac{1}{8}$ is a unit fraction, it is read as one eighth.
- Bassem ate 3 pieces of 8 equal pieces.
 - The fraction of the pizza he ate = $\frac{3}{8}$
 - $\frac{3}{8}$ is a proper fraction, it is read as three eighths.

Reviewing Vocabulary

Here are some math vocabulary words that you should know.

- Fraction a number that names a part of
 - a whole or part of a group.
- Denominator the number below the bar in
 - a fraction that tells how many
 - equal parts there are.
- Numerator the number above the bar in
 - a fraction that tells how many equal parts have been counted.
- Unit fraction a fraction has a numerator of 1.
- Proper fraction a fraction its numerator is

less than its denominator.

Note

The unit fractions are also proper fractions.

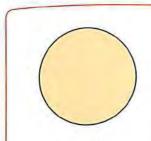
Notes for parents:

 Ask your child to give you an example for unit fraction and another example for proper fraction.

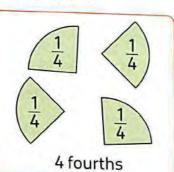
Learn

Compose fractions

- You can put fractions together to compose (build) a new fraction or one whole.
- The yellow circle represents 1 whole.



1 whole



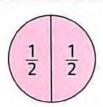


When you put 4 fourths together, you will get 1 whole.

$$\begin{array}{c|c} \hline \frac{1}{4} & \frac{1}{4} \\ \hline \frac{1}{4} & \frac{1}{4} \\ \hline \end{array}$$

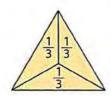
4 fourths = $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$ whole

You can use unit fractions to compose one whole



2 halves = 1 whole

$$\frac{1}{2} + \frac{1}{2} = 1$$



3 thirds = 1 whole

$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$$

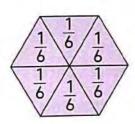
$$\begin{array}{c|c}
\frac{1}{4} & \frac{1}{4} \\
\frac{1}{4} & \frac{1}{4}
\end{array}$$

4 fourths = 1 whole

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$$

1 5	1 5	1 5	1/5	1 5
-----	-----	-----	-----	-----

5 fifths = 1 whole
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1$$



5 fifths = 1 whole 6 sixths = 1 whole 7 sevenths = 1 whole
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1$$
 $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = 1$ $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = 1$

1 7	
$\frac{1}{7}$	
1 7	
1 7	
1 7	
1 7	
1 7	

7 sevenths = 1 whole

$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = 1$$

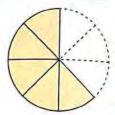
Encourage your child to build models to show one whole using unit fractions.

Also, you can use unit fractions to compose proper fraction



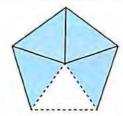
The shaded parts = $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$

Read: Three fourths



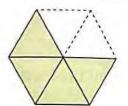
The shaded parts = $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$

Read: Five eighths



The shaded parts = $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$ The shaded parts = $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{4}{6}$

Read: Four fifths



Read: Four sixths

Example 1

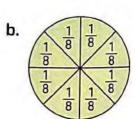
Create a model to represent each of the following:

- a. One whole $=\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
- **b.** One whole $=\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

You can use rectangles or circles

Solution [V]

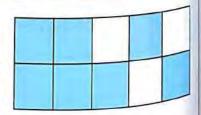




Example 2

What is the fraction that represents the colored parts?

Write an equation using the unit fractions to show this fraction.



Solution [V]

$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{7}{10}$$

Notes for parents:

Help your child to use rectangles or circles to build a fraction using unit fractions.

Learn

Decompose fractions

- Decomposing a fraction means breaking it into separate units or parts.
- You can decompose one whole into unit fractions as the opposite chart.

$$1 = \frac{1}{2} + \frac{1}{2}$$

$$= \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$$

$$= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$

$$= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$$

$$= \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

$$= \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$

$$= \frac{1}{8} + \frac{1}{8} = \dots$$

				1			
		2				1/2	
	1/3			1 3			1 3
1/2			<u>1</u> 4		1/4		1/4
		1 5		1 5	1 5	5	1 5
1/5 1/6 1/7 1/8	1		1/6	16		1/6	$\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{6}$ $\frac{1}{7}$ $\frac{1}{8}$
17	17	1 7	7	1 7	1 7	1 7	1 7
1 8	18	1 8	1 8	1/8	1 8	1 2	1 1 8

Notice

$$1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} = \frac{8}{8} = \dots$$



 You can use unit fractions or proper fractions to decompose a fraction as in the following example.

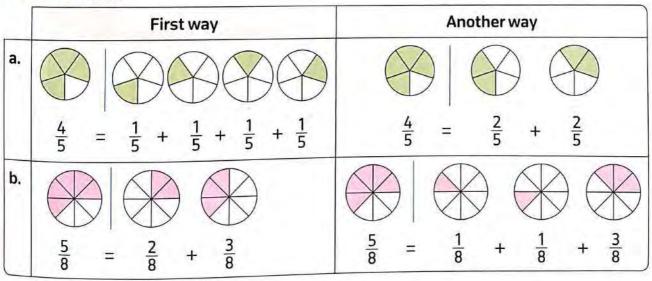
Example 3

Decompose each of the following fractions in two ways. Draw a model.

a.
$$\frac{4}{5}$$

b.
$$\frac{5}{8}$$

Solution [V]





check your understanding

1. Write the fraction that represents $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ Draw a model for this fraction.

Work area

2. Use unit fractions, to write an equation represents the fraction for the colored parts.



3. Write an equation to decompose $\frac{3}{4}$ into unit fractions.



a.
$$\frac{3}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

$$\frac{3}{6} = \frac{1}{1} + \frac{1}{1}$$

b.
$$\frac{6}{7} = \frac{1}{100} + \frac{1}{100}$$

$$\frac{6}{7} = \bigcirc + \bigcirc + \bigcirc$$

c.
$$\frac{4}{5} = \frac{1}{100} + \frac{1}{100}$$

$$\frac{4}{5} = \bigcirc + \bigcirc + \bigcirc$$





Notes for parents:

Encourage your child to use models or drawings to compose and decompose fractions in this page.

Exercise

8

9-1 Let's Build It

9-2 Break It Down

9-3 Break It Down Again

REMEMBER

UNDERSTAND

O APPLY

ROBLEM SOLVING

From the school book

1. III Fill in the table with information about each fraction.

	Total number of equal parts	Total number of equal parts shaded	Word form	Fraction form
a				
b. (
c.				
d.			\longrightarrow	-
e. 💮				
f.				

2.	Record	a definition	of each	term.

a. Fraction: -

b. D Numerator: -

c. Denominator:

d. I Unit fraction:-

e. Proper fraction:-

3. Create a model to represent each of the following. Use circles or rectangles.

- a. $\frac{1}{2} + \frac{1}{2} = 1$ whole
- **b.** \square $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$ whole
- c. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$ whole
- 4. How many unit fractions compose each of the following fractions.
 - a. $\frac{3}{5}$ ———

b. $\frac{6}{7}$ —

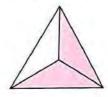
c. 4/9

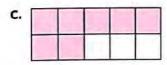
- d. Dive-eighths —
- e. Three quarters
- f. Seven tenths

5. What is the fraction that represents the colored parts?

- Write an equation using unit fractions to show how to compose this fraction.
- a. 🕮

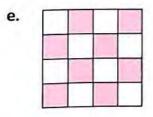
b.

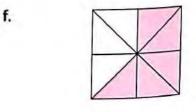




d. 🕮



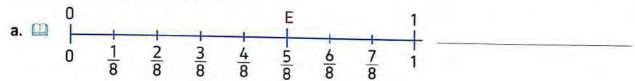


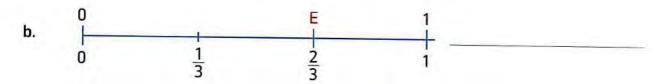


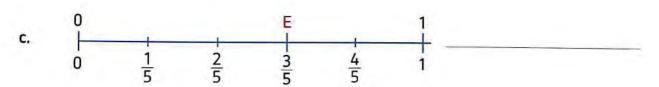
6. Complete the table.

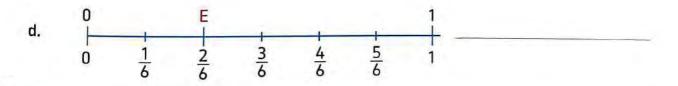
Model	Fraction	Unit fraction	Equation to form the fraction
a.			
b.	<u>5</u>		
с.		1/8	
d.			$\frac{1}{3} + \frac{1}{3}$

7. Look at point E on the number line. How many unit fractions do you need to represent point E in each of the following ?



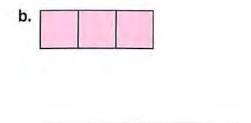




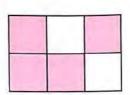


8. Write an equation to decompose each of the following into unit fractions.

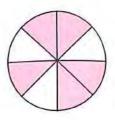




C.



d.



- 9. Write an equation decomposing each of the following fractions into unit fractions.
- a. $\square \frac{3}{5} = ----$

d. $\frac{3}{8} = -----$

- b. $\frac{5}{7} =$ c. $\frac{4}{5} =$
 - e. $\frac{2}{6} = \frac{3}{10} = \frac{3}{10$
- 10. Decompose each of the following proper fractions in two ways.

a. $\frac{3}{5}$

- b. $\frac{7}{8}$
- c. $\frac{5}{6}$
- d. $\frac{4}{9}$
- e. $\frac{4}{7}$
- f. $\frac{5}{8}$
- g. $\frac{6}{10}$

First way

$$\frac{3}{5} = \frac{\bigcirc}{\bigcirc} + \frac{\bigcirc}{\bigcirc}$$

$$\frac{7}{8} = \frac{\bigcirc}{\bigcirc} + \frac{\bigcirc}{\bigcirc}$$

$$\frac{4}{9} = \frac{4}{9} = \frac{4}$$

$$\frac{5}{9} =$$

$$\frac{6}{10} =$$

Another way

$$\frac{3}{5} = \frac{\bigcirc}{\bigcirc} + \frac{\bigcirc}{\bigcirc} + \frac{\bigcirc}{\bigcirc}$$

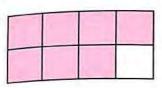
$$\frac{7}{8} = \frac{\bigcirc}{\bigcirc} + \frac{\bigcirc}{\bigcirc} + \frac{\bigcirc}{\bigcirc}$$

- 11. Draw a model that represents one way of decomposing the following.
 - a. $\Box \frac{3}{4}$

b. $\frac{4}{5}$

praw models and write as many equations as possible to decompose the given fractions.

- a. $\frac{9}{12}$
- b. 12 15



d.

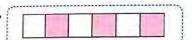


13. Match.

4	1	1	
- Comments		-	
7	7	1 7	
-	4	3	
	1-	$\frac{1}{3} + \frac{1}{3} -$	$\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$

Two	fi	ftŀ	15

$$\frac{2}{7} + \frac{3}{7}$$



e.

One	for	rth
Olle	IOU	LLI

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One
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6	

4.



5.

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14. Put (1) or (X).

a. $\frac{4}{5}$ is a unit fraction.

[] b. $\frac{3}{9} + \frac{1}{9} + \frac{1}{9} = \frac{5}{9}$

]

- c. $\frac{9}{7}$ is a proper fraction.
- [] d. The model represents $\frac{3}{8}$ [

e. represents six tenths. [

 $\int |f| 1 = \frac{8}{8}$

]

15. Complete.

g. $\frac{1}{6}$ is a proper fraction.

- a. $\frac{1}{3} + \frac{1}{3} =$ b. $\frac{1}{4} + \frac{1}{4} =$ c. $\frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} =$ d. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$

e.
$$\frac{-}{5} = 1$$

g.
$$\frac{3}{3} =$$

i.
$$+\frac{1}{5} = \frac{4}{5}$$

f.
$$\frac{3}{2} = 1$$

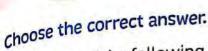
h.
$$\frac{1}{7}$$
+ $\frac{4}{7}$ = 1

THE PARTY OF

- 16. Day Two families went to the local restaurant. Each family ordered the feteer meshaltet. Eman's family wanted their feteer cut into 6 equal pieces. Ayman's family wanted their feteer cut into 8 equal pieces. If both feteer are the same size, which family will have larger pieces to eat? How do you know?
- 17. \square Mazen needed $\frac{3}{4}$ cup of sugar for his recipe. He had a measuring cup that held $\frac{1}{4}$ cup of sugar. How many times will he need to fill the measuring cup for his recipe?
- 18. \square Omar ate $\frac{1}{5}$ of a bag of popcorn. He and his brother Amir shared the rest of the bag. Write equations to show two ways they could share the remaining popcorn.
- **19.** Ahmed said that the sum of $\frac{4}{10} + \frac{7}{10} + \frac{1}{10}$ is the same of the sum of $\frac{2}{10} + \frac{5}{10} + \frac{5}{10}$ Is Ahmed true ? [Give reason]

Challenge

20. Is $\frac{1}{1}$ a unit fraction or a proper fraction? [Explain your answer]



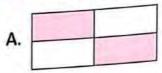
1. Which of the following is a unit fraction?

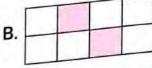
A. 2/3

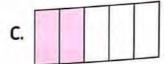
B. $\frac{1}{4}$

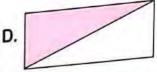
c. 3/5

2. The model which represents $\frac{2}{5}$ is









3. Two fifths =

A. $\frac{1}{5}$

4. The equation of decomposing
$$\frac{3}{7}$$
 into

the unit fractions is

A.
$$\frac{1}{7} + \frac{2}{7}$$

B.
$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$

c.
$$\frac{3}{4} + \frac{3}{3}$$

D.
$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$

represents
$$\frac{5}{7}$$
?

A.
$$\frac{2}{7} + \frac{3}{7}$$

represents 7.
A.
$$\frac{2}{7} + \frac{3}{7}$$
 B. $\frac{5}{4} + \frac{5}{3}$

c.
$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$
 D. $\frac{1}{7} + \frac{3}{7}$

D.
$$\frac{1}{7} + \frac{3}{7}$$

A.
$$\frac{3}{9}$$

B. $\frac{9}{18}$

7.
$$\square$$
 Which of the following expressions is the same as $\frac{5}{6}$?

A.
$$\frac{1}{6} + \frac{2}{6} + \frac{3}{6} + \frac{4}{6} + \frac{5}{6}$$

c.
$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

B.
$$\frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6}$$

p.
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$$

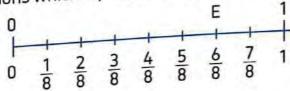
A.
$$\frac{1}{4}$$

B.
$$\frac{2}{4}$$

c.
$$\frac{3}{4}$$

D.
$$\frac{4}{4}$$

9. The number of unit fractions which represent the point E is



10. The number of unit fractions which represent the point K is



- A. 6
- **B.** 5

C. 4

D. 3

11.
$$\frac{3}{7}$$
 + $\frac{2}{7}$ = $\frac{6}{7}$
A. $\frac{1}{7}$ B. $\frac{2}{7}$

- c. $\frac{3}{7}$ D. $\frac{4}{7}$

12.
$$\frac{3}{10} = \frac{2}{10} +$$

A. $\frac{1}{10}$

- c. $\frac{3}{10}$

- 13. Maha has $\frac{7}{8}$ of a pizza. If her brother Ahmed ate $\frac{5}{8}$ of it, then the share of Maha is

c. $\frac{3}{8}$

D. $\frac{5}{8}$



At All Bookstores..



GL-MORSSER



Science & Connect plus

For 4th Primary

9-4 All Mixed Up

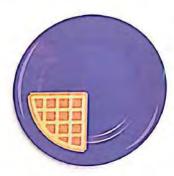
Learn

Improper fractions and mixed numbers

There are two whole waffles and one fourth of a waffle. There are nine fourths waffles.



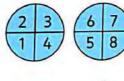




You can write the amount of waffles as an improper fraction or as a mixed number.

An improper fraction has a numerator that is greater than or equal to its denominator.

To write an improper fraction, count the parts.

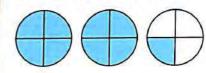


 $\frac{9}{4}$ means: you have 9 parts, each part is a fourth $\left(\frac{1}{4}\right)$ of a whole.

A mixed number is made up of a whole number and a proper fraction.

Whole number $\longrightarrow 2\frac{1}{4}$ Fraction

To write a mixed number, count the wholes and parts.



 $2\frac{1}{4}$ read as "Two and one fourth".

Notes for parents:

 In this lesson, your child will write and make connection between mixed numbers and improper fractions.

Remember

The definitions of the three types of fractions

Proper fraction.

A proper fraction is just a fraction where its numerator is less than its denominator.

Numerator < Denominator

Examples for proper fractions:









Improper fraction.

An improper fraction is just a fraction where its numerator is greater than or equal to its denominator.

Numerator > Denominator

Examples for improper fractions:







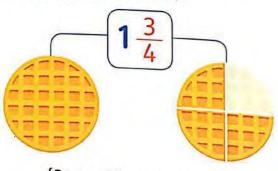




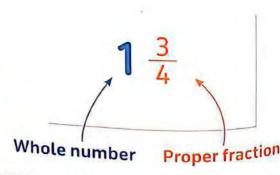
Mixed number.

A mixed number is a number made up of a whole number and a proper fraction.

Example for mixed numbers:



[One and three quarters]

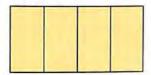


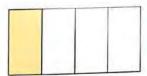
Notes for parents:

• Ask your child what is the difference among a proper fraction, an improper fraction, and a mixed number?

Observe the model, then answer the following questions:

1. What is the unit fraction used to compose this improper fraction?





- 2. How many colored unit fractions in the model?
- 3. What is the improper fraction represented by this model?

Solution [V]



1.
$$\frac{1}{4}$$

2. 5

3. $\frac{5}{4}$

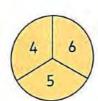
Example 2

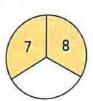
Draw a model that represents the improper fraction $\frac{8}{3}$

Solution [V









Remark (1)

Any whole number not equal to 0 can be written in the form of an improper fraction.

Examples:

•
$$1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \dots \text{ etc.}$$

•
$$5 = \frac{5}{1} = \frac{10}{2} = \frac{15}{3} = \frac{20}{4} = \dots \text{ etc.}$$

•
$$2 = \frac{2}{1} = \frac{4}{2} = \frac{6}{3} = \frac{8}{4} = \dots \text{ etc.}$$

•
$$10 = \frac{10}{1} = \frac{20}{2} = \frac{30}{3} = \frac{40}{4} = \dots \text{ etc.}$$

Remark (2)

Any mixed number can be written as an improper fraction and vice versa.

Example:









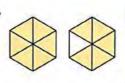




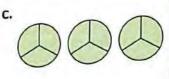


Write an improper fraction for the shaded parts. Then write each as a mixed number $_{\mbox{\scriptsize 0r}}$ as a whole number.

a.











Solution [V]

You can count unit fractions.

a.
$$\frac{11}{6} = 1\frac{5}{6}$$

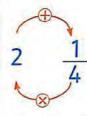
b.
$$\frac{5}{3} = 1\frac{2}{3}$$

c.
$$\frac{9}{3} = 3$$

d.
$$\frac{19}{5} = 3\frac{4}{5}$$

Here's how to change from one form to another.

To change a mixed number to an improper fraction, you can multiply then add as shown below.



$$\frac{1}{4} = \frac{9}{4} \leftarrow \frac{(4 \times 2) + 1}{\text{denominator stays}}$$
the same.

So,
$$2\frac{1}{4} = \frac{9}{4}$$

To change an improper fraction to a mixed number, you can divide.

The fraction bar stands for "divided by" So $\frac{9}{4}$ means "9 ÷ 4"

← number of fourths

$$9 \div 4 = 2R1$$

So, $\frac{9}{4}$ is equal to $2\frac{1}{4}$

Example 4

Write each of the following mixed numbers as an improper fraction.

a.
$$2\frac{3}{4}$$

b.
$$3\frac{5}{8}$$

c.
$$2\frac{3}{7}$$

d.
$$5\frac{7}{10}$$

Solution [V]

a.
$$2\frac{3}{4} = \frac{11}{4}$$
 [Think: $\frac{[4 \times 2] + 3}{4}$]

b.
$$3\frac{5}{8} = \frac{29}{8}$$
 [Think: $\frac{[8 \times 3] + 5}{8}$]

c.
$$2^{\frac{9}{3}} = \frac{17}{7}$$
 [Think: $\frac{[7 \times 2] + 3}{7}$]

d.
$$5\frac{7}{10} = \frac{57}{10}$$
 [Think: $\frac{(10 \times 5) + 7}{10}$]

Notes for parents:

• Ask your child to write the × and + symbols when changing to improper fraction. Marking the arrows to show the direction to follow may help your child do the operations in the correct orders.

Write each of the following improper fractions as a mixed number.

b.
$$\frac{26}{3}$$

d.
$$\frac{13}{7}$$

solution [V]

a,
$$\frac{3}{2} = 1\frac{1}{2}$$
 [Think: 3 ÷ 2 = 1R1]

c.
$$\frac{39}{4} = 9\frac{3}{4}$$
 [Think: 39 ÷ 4 = 9 R 3]

b.
$$\frac{26}{3} = 8\frac{2}{3}$$
 [Think: $26 \div 3 = 8 R 2$]

d.
$$\frac{13}{7} = 1\frac{6}{7}$$
 [Think: 13 ÷ 7 = 1R6]

your understanding

1. Draw a model to represent 2 $\frac{2}{3}$

2. Draw a model to represent $\frac{15}{6}$

Write each mixed number as an improper fraction.

a.
$$3\frac{3}{4}$$

d.
$$7\frac{2}{9}$$

 Write each improper fraction as a mixed number.

d.
$$\frac{35}{6}$$

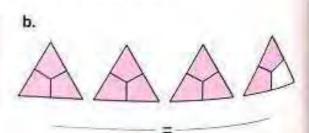
Let your child check his/her answers by changing improper fractions back to mixed numbers and mixed numbers back to improper fractions.

Exercise

9

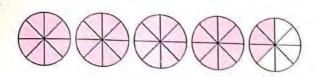
9-4 All Mixed Up

	• REMEMBER	• UHTÉRSFAND	OATPLI	& PROBLEM SOLVING	(From the school bo
1. St	ate which is	s a proper frac	tion, an ir	nproper fraction or a	mixed number in each of
200	e following				
a.	5 6		b. $\frac{6}{5}$		c. 7
	6 7		b. $\frac{6}{5}$ e. $5\frac{3}{8}$		c. $\frac{12}{7}$ f. $3\frac{5}{12}$
2. cl	hoose the b	est term from			A mixed numb
a.	-	is a fractio	on greater	than, or equal to 1.	An improper fracti
b	-	is made u	p of a who	le number and a fracti	
c.		is a fractio	n its nume	erator is less than its d	enominator.
a		06		b. /	1 4
c				d.	
		1.00		-	

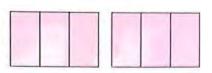


a.

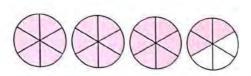
c.

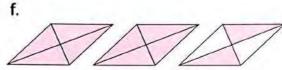


d.

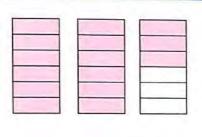


e.

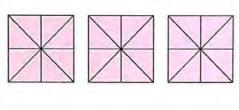




g.



h.



5. Shade the model to represent the following mixed numbers, then write the equivalent improper fraction.







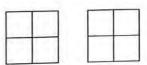




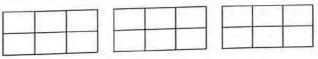
b. \square 2 $\frac{1}{3}$



c. $1\frac{1}{4}$

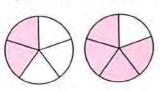


d. $2\frac{1}{6}$



6. Write the opposite fraction in the form of improper fraction and mixed number.

a.



Improper fraction -

Mixed number -

b.

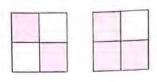




Improper fraction —

Mixed number -

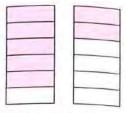
C.



Improper fraction

Mixed number

d.



Improper fraction

Mixed number

7. Draw a model for each of the following mixed numbers. Then write each mixed number as an improper fraction.

- a. $4\frac{1}{4}$
- **c.** $5\frac{3}{5}$

- **b.** $3\frac{1}{8}$
- d. $3\frac{2}{3}$

8. Draw a model for each of the following improper fractions. Then write each improper fraction as a mixed number.

a. $\square \frac{3}{2}$

b. $\square \frac{7}{3}$

c. $\Box \frac{16}{6}$

d. $\frac{32}{5}$

9. Write each mixed number as an improper fraction.

- **a.** $\square 3\frac{1}{2} = ----$
- **d.** $\Box 5\frac{1}{4} = ----$
- g. $12\frac{2}{3} = ---$
- j. 25 \frac{1}{4} = _____

- **b.** $\square 2\frac{1}{6} =$
- **e.** $\Box 4\frac{1}{5} =$
 - h. $9\frac{1}{4} =$ _____
 - k. $22\frac{1}{2} =$
- c. $6\frac{7}{8} =$
- f. $6\frac{2}{3} =$
 - i. $8\frac{2}{5} = ---$

10. Write each improper fraction as a mixed number or as a whole number.

- a. $\frac{9}{2} = -$
- d. $\frac{42}{6} = -$
- g. $\frac{36}{4} = \frac{1}{100}$
- j. $\frac{23}{5} = -----$

- b. $\frac{19}{5}$ =
- e. $\frac{43}{8} =$
- h. $\frac{68}{9} =$
- k. $\frac{34}{3} =$

- c. $\frac{25}{3}$ =
- f. $\frac{49}{6} =$
- i. $\frac{23}{4} = ---$
- $l. \frac{49}{7} = ---$

11. Complete.

a.
$$\frac{3}{3} = ----$$

$$, \frac{9}{3} =$$

a.
$$\frac{3}{3} = \frac{6}{3} = \frac{12}{3} = \frac{12}{3}$$

b.
$$\frac{-}{5} = 2$$

e.
$$\frac{15}{1} = 5$$

c.
$$\frac{-}{7} = 3$$

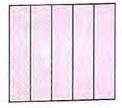
f.
$$\frac{8}{-}$$
 = 2

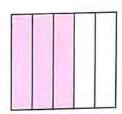
d.
$$\frac{-}{5} = 5$$

g.
$$\frac{9}{-} = 1$$

12. Dook at the model and answer the questions.

- a. What unit fraction is used to build this improper fraction? -
- b. How many unit fractions are colored in? -





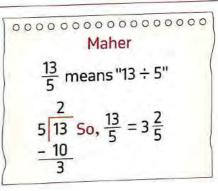
c. What is the improper fraction represented by this model?

13. Writing about Math.

Maher wrote $\frac{13}{5}$ as a mixed number.

Explain what Maher did wrong.

Then solve the problem correctly.



Challenge

14. Mona baked a square cake for her mom's birthday. She wanted to put a border of frosting on the top of the cake. If one side of the cake measures $\frac{3}{8}$ meter, what is the perimeter of the top of the cake? Write the answer as both a mixed number and an improper fraction.



Multiple Choice Questions

Choose the correct answer.

- 1. A fraction in which its numerator is greater than or equal to its denominator is called
 - a proper fraction.

B. a mixed number.

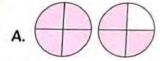
C. a unit fraction.

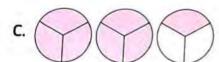
- D. an improper fraction.
- 2. Which of the following is an improper fraction?
 - A. $2\frac{1}{5}$
- C. $\frac{1}{4}$

- 3. Which of the following is a mixed number?
 - A. $\frac{3}{2}$

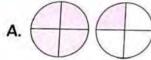
c. $\frac{2}{3}$

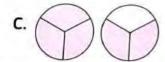
- D. $5\frac{1}{2}$
- 4. \square The correct model which represents the improper fraction $\frac{7}{6}$ is





- 5. \square The correct model which represents the improper fraction $\frac{5}{4}$ is





- 6. $2\frac{1}{7}$ = (as an improper fraction)

B. $\frac{15}{7}$

c. $\frac{13}{7}$

D. $\frac{21}{7}$

- 7. $\frac{71}{10} = -$
- (as a mixed number)
- A. $70 \frac{1}{10}$
- B. $7\frac{1}{2}$
- C. $7\frac{1}{10}$
- **D.** $10\frac{1}{7}$

- 8. Ashraf eats pizza, then the fraction which represented by the shape [choose two answers]. equals
 - **A.** $\frac{5}{4}$

- B. $1\frac{1}{3}$
- C. $4\frac{1}{4}$
- D. $1\frac{1}{4}$

- 9. At a party, Sally eats $3\frac{1}{3}$ cup cakes. Ali eats $\frac{10}{3}$ cup cakes. Who eats the most?
 - A. They both eat the same amount.
 - B. Ali eats the most.
 - C. Sally eats the most.



9-6 Adding Mixed Numbers

9-7 Subtracting Mixed Numbers

Learn

Parts of a whole

Wael recorded the distance he covered in swimming in five days.

- 1. How many km did Wael swim altogether during the 5 days?
- 2. How much further did Wael swim on Thursday than on Wednesday?

Answer:

1. You can add to find the total distance he covered.

Add.
$$1+1+1+\frac{3}{5}+\frac{4}{5}$$

Wael's Swimming Record

Day	Distance
Monday	1km
Tuesday	1km
Wednesday	$\frac{3}{5}$ km
Thursday	1 km
Friday	4 km

One Way [Use models]

$$1 + 1 + 1 + \frac{3}{5} + \frac{4}{5} = \frac{22}{5} = 4\frac{2}{5}$$











[Think: 22 + 5 = 4 R2]

Another Way

$$[1 + 1 + 1] + [\frac{3}{5} + \frac{4}{5}]$$
= 3 + $\frac{7}{5}$ [Think: $7 \div 5 = 1R2$]
= 3 + $1\frac{2}{5} = 4\frac{2}{5}$

MATH IDEA

To add fractions with common denominators. add the numerators and then write the sum over the common denominator

Third Way

1 + 1 + 1 +
$$\frac{3}{5}$$
 + $\frac{4}{5}$ [Think: $1 = \frac{5}{5}$]
 $\frac{5}{5}$ + $\frac{5}{5}$ + $\frac{5}{5}$ + $\frac{3}{5}$ + $\frac{4}{5}$ = $\frac{22}{5}$ = $4\frac{2}{5}$

So, Wael swim $4\frac{2}{5}$ km during the 5 days.

Notes for parents:

Help your child to use models to add fractions.

2. You can subtract to find the difference.

Subtract. $1 - \frac{3}{5}$

One Way Use a model

$$1 - \frac{3}{5} = \frac{2}{5}$$



Another Way

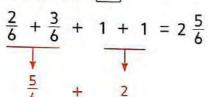
$$1 - \frac{3}{5} = \frac{5}{5} - \frac{3}{5} = \frac{2}{5}$$

So, Wael swim $\frac{2}{5}$ km on Thursday further than on Wednesday.

Example 1

Rewrite the problem with whole numbers and proper fractions, then solve it:

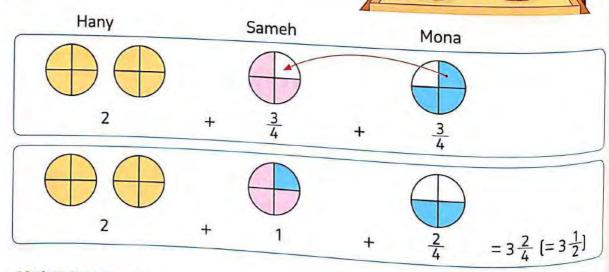
Solution [V]



Example 2

Hany has 2 pizzas, Sameh has $\frac{3}{4}$ pizza, and Mona has $\frac{3}{4}$ pizza. Use models to find the total they have.

Solution [7]



Notes for parents:

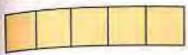
Help your child to use models to subtract fractions.

Hany walks 2 km every day. Sally walks $\frac{4}{5}$ km every day.

Haw much further does Hany walk than Sally?

You may draw models to help.

solution [V]



$$-\frac{4}{5} = 1$$

50, Hany walks $1\frac{1}{5}$ further than Sally.



Example 4

Solve each of the following problems.

a.
$$6 + \frac{1}{5} + \frac{2}{5} + \frac{1}{5}$$
 b. $\frac{4}{9} + \frac{5}{9} + 2$ c. $1 + 2 + \frac{2}{3} + \frac{2}{3}$ d. $1 - \frac{3}{4}$ e. $2 - \frac{5}{8}$ f. $1 - \frac{2}{7} - \frac{1}{7}$

b.
$$\frac{4}{9} + \frac{5}{9} + 2$$

c.
$$1+2+\frac{2}{3}+\frac{2}{3}$$

d.
$$1 - \frac{3}{4}$$

e.
$$2 - \frac{5}{8}$$

f.
$$1 - \frac{2}{7} - \frac{1}{7}$$

Solution [9]

a.
$$6 + \frac{1}{5} + \frac{2}{5} + \frac{1}{5}$$

$$= 6 + \frac{4}{5}$$

$$= 6\frac{4}{5}$$

b.
$$\frac{4}{9} + \frac{5}{9} + 2$$

= $\frac{9}{9} + 2$ [Think: $\frac{9}{9} = 1$]
= 1 + 2 = 3

c.
$$1+2+\frac{2}{3}+\frac{2}{3}$$

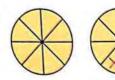
$$= 3 + \frac{4}{3} [Think: \frac{4}{3} = 1\frac{1}{3}]$$

$$= 3 + 1\frac{1}{3} = 4\frac{1}{3}$$

d.
$$1 - \frac{3}{4} = \frac{4}{4} - \frac{3}{4}$$
$$= \frac{1}{4}$$

Give you child a statement as $\pm \frac{1}{5} + \frac{2}{5} = \frac{3}{10}$, ask him/her what is the error in this statement. Ask him/her to rewrite it in a right way.

e.
$$2 - \frac{5}{8} = 1\frac{3}{8}$$

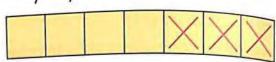


Another Solution

$$2 = \frac{16}{8}$$
 [Because 2 × 8 = 16]

$$2 - \frac{5}{8} = \frac{16}{8} - \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}$$

f.
$$1 - \frac{2}{7} - \frac{1}{7} = \frac{4}{7}$$



Another Solution

$$1 - \frac{2}{7} - \frac{1}{7} = \frac{7}{7} - \frac{2}{7} - \frac{1}{7}$$
$$= \frac{5}{7} - \frac{1}{7} = \frac{4}{7}$$

died your understanding

Solve each of the following.

a.
$$1 + \frac{3}{5} + \frac{1}{5} + 2$$

b.
$$2 + 1 + \frac{5}{6} + \frac{2}{6}$$

c.
$$1 - \frac{2}{5}$$

d.
$$2 - \frac{2}{9}$$

Notes for parents:

- Help your child to understand how 2 is equal to $\frac{16}{8}$
- Help him/her to draw the circles and divide each one to eight equal parts. Ask him/her to count the all parts.

Learn

Add and subtract mixed numbers with like denominators

. Add mixed numbers with like denominator

On Friday, Samy practiced football $2\frac{2}{4}$ hours. On Saturday, he practiced $1\frac{1}{4}$ hours.

How many hours did Samy practice football in the two days?

Add.
$$2\frac{2}{4} + 1\frac{1}{4}$$

Step

Draw a model for each mixed number.

Add the fractions first. Count the number of fourths shaded.

$$2\frac{2}{4}$$
+ $1\frac{1}{4}$
 $\frac{3}{4}$



Step 2

Then add the whole numbers.

Count the number of whole rectangles shaded.

50, Samy practiced football $3\frac{3}{4}$ hours in the two days.

Remember to add the additional whole number if the fractional part of a sum is greater than 1,

More Examples

a.

















b.



 $+1\frac{3}{6}$



 $1\frac{7}{6}$ = 1+1 $\frac{1}{6}$ = 2 $\frac{1}{6}$

[Hint: $\frac{7}{6} = 1\frac{1}{6}$]

^{*}Help your child understand that when adding mixed numbers he/she can add whole numbers first then add fractions.

Subtract mixed numbers with like denominators

Subtracting mixed numbers is similar to adding mixed numbers.

Bassem rode $3\frac{5}{8}$ km on Saturday. He rode $1\frac{1}{8}$ km on Monday. How much further did he ride on Saturday?

Subtract.
$$3\frac{5}{8} - 2\frac{1}{8}$$

Step 1

Draw a model for the first mixed number.

Subtract the fractions first.

Cross off 1 of the shaded parts.

$$3\frac{5}{8}$$
 $-2\frac{1}{8}$
 $\frac{4}{8}$



Then subtract the whole numbers.

Cross off 2 whole rectangles.

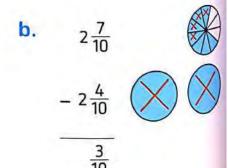
So, Bassem rode $1\frac{4}{8}[1\frac{1}{2}]$ on Saturday further than on Monday.

More Examples

a.
$$4\frac{3}{4}$$

$$-2\frac{2}{4}$$

$$\frac{1}{2\frac{1}{4}}$$



Notes for parents:

Remind your child that he/she sometimes can subtract whole numbers first, then subtract fractions.

Solve each of the following. You may draw models to help.

a.
$$2\frac{3}{8} + 2\frac{2}{8}$$

b.
$$1\frac{4}{5} + \frac{1}{5}$$

e. $6 - 3\frac{3}{4}$

c.
$$4\frac{3}{6} + 2\frac{4}{6}$$

d.
$$3\frac{3}{5} - 2\frac{1}{5}$$

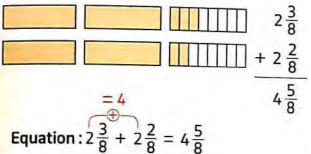
e.
$$6 - 3\frac{3}{4}$$

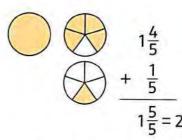
c.
$$4\frac{3}{6} + 2\frac{4}{6}$$

f. $5\frac{1}{3} - 2\frac{2}{3}$

Solution [V]





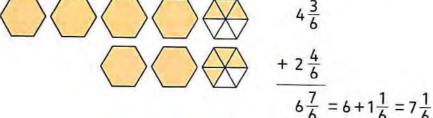


Equation:
$$2\frac{3}{8} + 2\frac{2}{8} = 4\frac{5}{8}$$

Equation:
$$1\frac{4}{5} + \frac{1}{5} = 1\frac{5}{5} = 2$$

[Hint:
$$\frac{5}{5} = 1$$
 So, $1\frac{5}{5} = 1 + 1 = 2$]

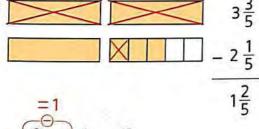
c. Model:

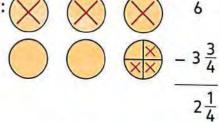


Equation:
$$4\frac{3}{6} + 2\frac{4}{6} = 6\frac{7}{6}$$
 [Rename $\frac{7}{6}$ as $1\frac{1}{6}$]

$$=6+1\frac{1}{6}=7\frac{1}{6}$$

d. Model:





$$=\frac{2}{5}$$

Equation: $6-3\frac{3}{4}$ [Rename 6 as $5\frac{4}{4}$]

 $^{=5\}frac{4}{4}-3\frac{3}{4}=2\frac{1}{4}$

Choose any problem in this page, ask your child how he/she can solve it.

f. Model:











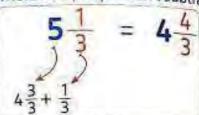


$$-2\frac{2}{3}$$
 $2\frac{2}{3}$

Equation: $5\frac{1}{3}-2\frac{2}{3}$ The numerator 1 is less than the numerator 2, so you can't subtract

Rename 5 as
$$4\frac{3}{3}$$
, so $5\frac{1}{3} = 4\frac{4}{3}$

$$5\frac{1}{3} - 2\frac{2}{3} = 4\frac{4}{3} - 2\frac{2}{3} = 2\frac{2}{3}$$



Example 6

Complete each of the following.

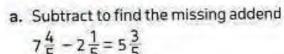
a.
$$2\frac{1}{5} + \cdots = 7\frac{4}{5} \mid b$$
. $-1\frac{3}{4} = 3\frac{1}{4} \mid c$. $7\frac{2}{3} - \cdots = 5\frac{1}{3} \mid d$. $-2\frac{3}{7} = 3\frac{2}{7}$

b.
$$-1\frac{3}{4} = 3\frac{1}{4}$$

c.
$$7\frac{2}{3} - \dots = 5\frac{1}{3}$$

d.
$$-2\frac{3}{7}=3\frac{2}{7}$$

Solution [9]



c. Subtract to find the missing subtrahend $7\frac{2}{3} - 5\frac{1}{3} = 2\frac{1}{3}$

d. Add to find the missing minuend $3\frac{2}{7} + 2\frac{3}{7} = 5\frac{5}{7}$

Using a number line to add and subtract mixed numbers with like denominators

You can use a number line to add or subtract mixed numbers as in the following example.

Example 7

Use a number line to add or subtract.

a.
$$1\frac{1}{5} + 2\frac{2}{5}$$

b.
$$3\frac{3}{4} - 1\frac{1}{4}$$

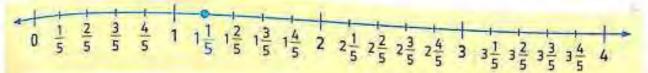
Solution [9

a. • Draw a number line

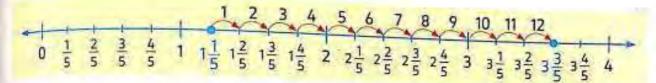


Notes for parents:

 Remind your child that he/she need to divide the distance between the 2 numbers on the number interest parts. The number of these parts equal the stance between the 2 numbers on the number of parts. equal parts. The number of these parts equal the denominator when dividing the distance into 5 equal parts. The number of these parts equal the denominator when dividing the distance into 5 equal parts. . Divide the distance between each two numbers into 5 equal parts, each part represents $\frac{1}{5}$ on the number line.



• Rename 2 $\frac{2}{5}$ as $\frac{12}{5}$. Start at 1 $\frac{1}{5}$ Count forward 12 times. You will reach 3 $\frac{3}{5}$



$$1\frac{1}{5} + 2\frac{2}{5} = 3\frac{3}{5}$$

b. Divide the distance between each two numbers into 4 equal parts, each part represents $\frac{1}{4}$ Rename $1\frac{1}{4}$ as $\frac{5}{4}$. Start at $3\frac{3}{4}$. Count backward 5 times to subtract. You will reach $2\frac{2}{4}$

$$3\frac{3}{4} - 1\frac{1}{4} = 2\frac{2}{4}$$

your understanding

Model and record the sum or the difference.

a.
$$5\frac{1}{6} + 2\frac{4}{6}$$

b.
$$5\frac{3}{8} + 1\frac{5}{8}$$

$$c. 2\frac{3}{4} + 3\frac{3}{4}$$

d.
$$3\frac{5}{6} - 2\frac{1}{6}$$

e.
$$2-1\frac{1}{3}$$

$$f_{1} = 5\frac{1}{5} - 2\frac{3}{5}$$

^{*}Ask your child to choose any problem in this page and solve it in more than one way.

Exercise

10

9-5 Pieces From the Whole

- 9-6 Adding Mixed Numbers
- 9-7 Subtracting Mixed Numbers

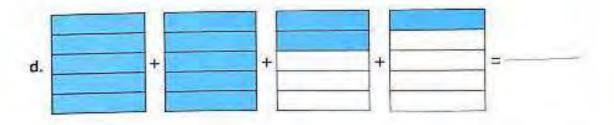
O UNDERSTAND O APPEN

PROBLEM SOLVING

From the school book

1. Rewrite the problem with whole numbers and proper fractions, then solve the problems.





2. Solve the following problems using numbers.

a.
$$1+1+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=$$

c.
$$141\frac{4}{9} + \frac{1}{9} + \frac{2}{9} + 4 =$$

e.
$$3+4+\frac{1}{2}=$$

g.
$$\square 2 + 2 + \frac{3}{5} + \frac{3}{5} =$$

b.
$$\square$$
 $\frac{10}{12} + \frac{1}{12} + 3 + 2 = ----$

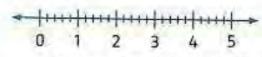
d.
$$3 + \frac{3}{5} + 1 + \frac{1}{5} =$$

h.
$$\Box 4 + \frac{4}{8} + 2 + \frac{5}{8} =$$

- 3. Use models to solve the following problems.
- a. $1 \frac{3}{4} =$

 - g. $2-\frac{2}{3}=$ h. $3-\frac{1}{3}=$ i. $4-\frac{5}{6}=$
- b. $\Box 1 \frac{2}{8} =$ c. $\Box 1 \frac{2}{5} \frac{1}{5} =$
- 4. Solve the following problems. Show your steps.
 - a. $\frac{3}{9} + \frac{2}{9} + \frac{7}{9} =$
 - c. $1 \frac{3}{6} \frac{1}{6} = -$
 - e. $1+\frac{1}{7}+2+\frac{3}{7}=$

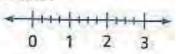
- b. $1+2+\frac{1}{5}+\frac{3}{5}+\frac{4}{5}=$
- d. $2 \frac{1}{3} \frac{1}{3} =$
- f. $3 \frac{2}{3} \frac{1}{3} =$
- 5. Add or subtract mixed numbers. Solve each problem using a number line, a model and an equation. For each model, color the first fraction one color and use a different color for the second fraction.
 - a. $2\frac{1}{5} + 1\frac{2}{5}$
 - Number line:



Model:



- b. $1\frac{1}{4} + \frac{3}{4}$
 - Number line:



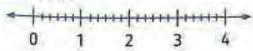
Model:



Equation:

Equation:

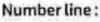
- c. 21+15
 - Number line:

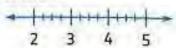


Model: AAAAA

VV	V	VV	VV	VV

d. $4\frac{3}{4} - 2\frac{1}{4}$



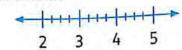


Model:

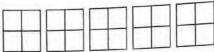
Equation:

e.
$$5-2\frac{1}{4}$$

Number line:

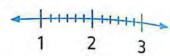


REMEMBER



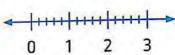
f. $3-1\frac{1}{6}$

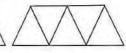
Number line:

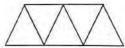


g.
$$2\frac{1}{5} - 1\frac{2}{5}$$

Number line:







Equation:

6. Solve the following problems using your favorite strategy. (Explain your steps).

a.
$$\square 2\frac{4}{9} + 1\frac{2}{9}$$

b.
$$\square 2\frac{3}{5} + 1\frac{4}{5}$$

c.
$$3\frac{1}{4} + 2\frac{3}{4}$$

d.
$$1\frac{2}{3} + 3\frac{1}{3}$$

e.
$$1\frac{1}{6} + 5\frac{5}{6}$$

f.
$$2\frac{4}{7} + 3\frac{6}{7}$$

g.
$$\square 3\frac{2}{5} - 2\frac{1}{5}$$

h.
$$4\frac{2}{3} - 2\frac{1}{3}$$

i.
$$3\frac{5}{8} - 2\frac{1}{8}$$

j.
$$\square 3 - 2\frac{1}{8}$$

k.
$$3\frac{1}{4} - 2\frac{3}{4}$$

$$1.5\frac{1}{6} - 3\frac{5}{6}$$

7. Complete.

a.
$$3\frac{2}{5} + \frac{3}{5}$$

c.
$$7\frac{5}{9}$$
 = $3\frac{1}{9}$

e.
$$-3\frac{1}{3} = 1\frac{1}{3}$$

g.
$$-1\frac{5}{7} = 2\frac{3}{7}$$

i.
$$2\frac{3}{4} + \cdots = 4\frac{1}{4}$$

b.
$$4\frac{5}{6} + \frac{5}{6} = 6\frac{5}{6}$$

d.
$$-2\frac{1}{4} = 3\frac{2}{4}$$

f.
$$4\frac{4}{5}$$
 = $1\frac{1}{5}$

h.
$$-+1\frac{1}{7}=3$$

- 8. Hanan bought $2\frac{3}{4}$ m of red fabric and $1\frac{1}{4}$ of blue. How much cloth did she buy in all?
- 9. Sarah drank 1 3/8 litres of water and Azza drank 1 5/8 litres of water. What is the total number of litres that Sarah and Azza drank?



- 10. \square Hady has $3\frac{1}{4}$ cookies, he gave $2\frac{3}{4}$ to his sister. How many cookies does he have left?
- 11. Omar bought 1 kilogram of kebab and he ate $\frac{1}{3}$ of it. How much was left?
- 12. Fatema is cooking dinner for her family, she needs a whole bottle of oil for frying.
 She has a bottle full of ¹/₅ and another bottle full of ³/₅.
 How much will she need to have one full bottle?



13. Heba read for two hours. She read with her brother for 1/2 hour, she read with her sister for 1/2 hour. And she read alone for the rest of the time. How long has she read alone?



Badr bought $1\frac{1}{2}$ kilograms of flour, $\frac{1}{2}$ kilogram of sugar and $2\frac{1}{2}$ kilograms of rice from the market.

What is the total mass of the things he bought in kilograms?



15. Ezz bakes a cake for his grandmother.

If he has $2\frac{1}{4}$ pans of butter, and the recipe needs $1\frac{2}{4}$ pans of butter. How much butter left will he has?



16. Nadia is making falafel for a party.

Her recipe calls for $\frac{1}{2}$ teaspoon sodium bicarbonate. The recipe makes enough for 10 people. Nadia is having 40 guests. In order to feed all her guests, she wants to quadruple her recipe. How many teaspoons of sodium bicarbonate will she use?



- 17. A square of side length $1\frac{1}{4}$ m. What is the perimeter of this square?
- 18. A rectangle of $3\frac{1}{5}$ cm length and $1\frac{1}{5}$ cm width. Calculate its perimeter.

Challenge

Write and solve your own addition story problem. You can use one of the equations provided to create your own.

$$2\frac{2}{9} + 3\frac{5}{9}$$

$$1\frac{4}{5} + 2\frac{1}{5}$$

$$3\frac{3}{10}+1\frac{9}{10}$$

20. Three sides of parking lot are measured to the following lengths: $3\frac{1}{8}$ km, $5\frac{3}{8}$ km, and $4\frac{5}{8}$ km. If the distance around the lot is 20 km. Find the fourth side length.

Multiple Choice Questions

choose the correct answer.

- A. 21
- B. 25

C. 23/4

D. 3

2. Which of following equations represent the opposite model?

A.
$$2 - \frac{1}{3} = \frac{5}{3}$$

c.
$$1 - \frac{1}{3} = \frac{3}{5}$$

B.
$$2 - \frac{1}{3} = \frac{5}{6}$$

D.
$$1 - \frac{1}{3} = \frac{5}{6}$$





3.
$$3 + \frac{3}{7} + 1 + \frac{1}{7} =$$

B.
$$4\frac{2}{7}$$

4.
$$1 - \frac{3}{5} =$$
A. $1\frac{3}{5}$

A.
$$1\frac{3}{5}$$

D.
$$1\frac{2}{5}$$

5.
$$2\frac{1}{5} + 1\frac{2}{5} =$$

B.
$$2\frac{2}{5}$$

6.
$$3-2\frac{1}{4}=$$
A. $1\frac{3}{4}$

B.
$$2\frac{3}{4}$$

c.
$$\frac{3}{4}$$

D.
$$5\frac{1}{4}$$

7.
$$5\frac{5}{9} - 2\frac{1}{9} = -$$
A. $3\frac{4}{0}$

B.
$$3\frac{4}{9}$$

8.
$$4 + \frac{4}{3} =$$
A. $4\frac{1}{3}$

A.
$$4\frac{1}{3}$$

B.
$$\frac{16}{4}$$

c.
$$\frac{12}{3}$$

D.
$$5\frac{1}{3}$$

9. Which one of the following statements in not true?

A.
$$5\frac{1}{4} = \frac{21}{4}$$

B.
$$5\frac{1}{4} = 3\frac{9}{4}$$

$$5\frac{1}{4} = 4\frac{4}{5}$$

C.
$$5\frac{1}{4} = 4\frac{4}{5}$$
 D. $5\frac{1}{4} = 4\frac{5}{4}$

10.
$$2\frac{1}{6} + 1\frac{2}{6} =$$

c.
$$3\frac{12}{6}$$

B.
$$3\frac{1}{2}$$

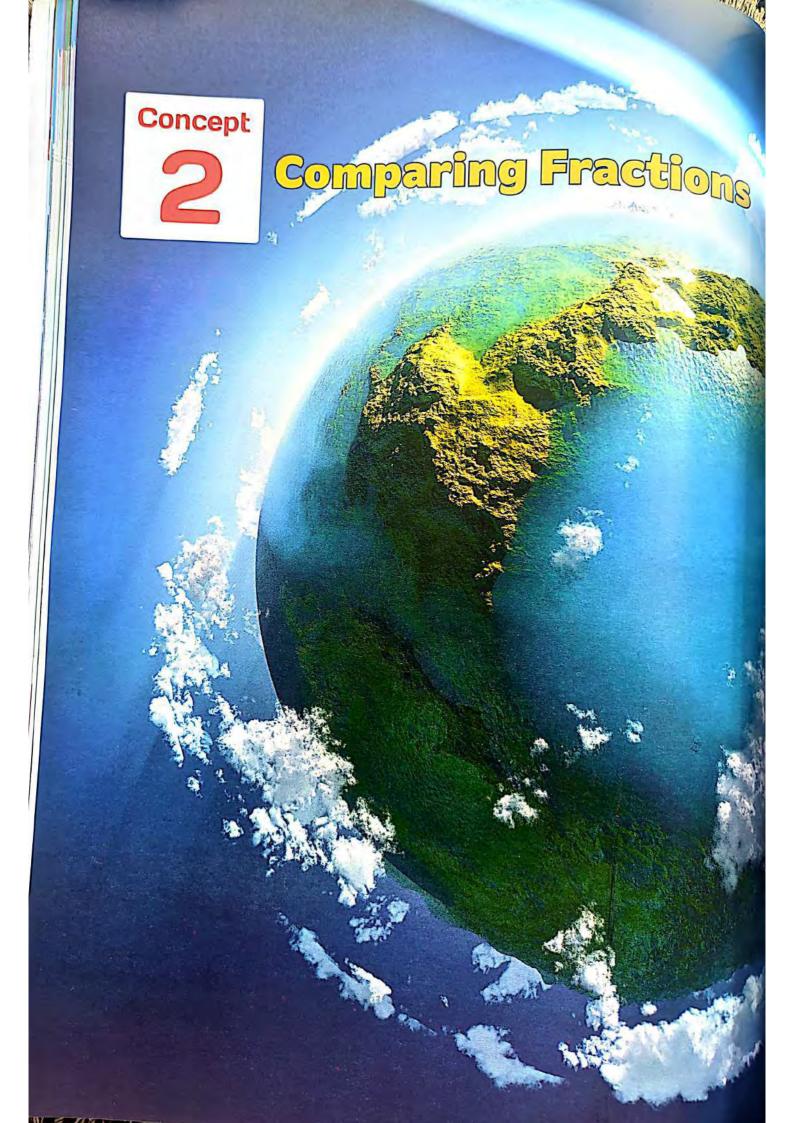
11. An equilateral triangle measures
$$3\frac{1}{2}$$
 cm on one side. What is the perimeter of the triangle?

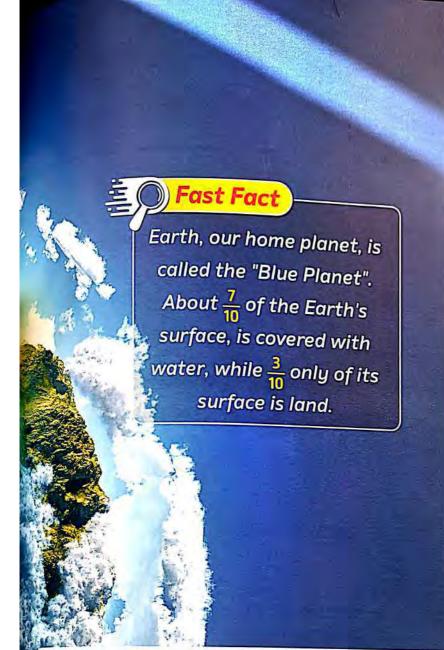
B.
$$10\frac{1}{2}$$
 cm

D.
$$10\frac{1}{2}$$
 cm²

12. Sameh worked $2\frac{3}{4}$ hours and Ayman worked $3\frac{1}{4}$ hours. What is the total time they worked?

C.
$$5\frac{1}{4}$$
 hours





Concept Overview

In concept 2:

Company Lactions, students extend the mater landing of fraction equipment ordering, initially company and ordering fractions with here denominators and numerators. This is extended to improper fractions and mixed numbers before moving into identifying and creating equivalent fractions. Next, students explore benchmark fractions $[0,\frac{1}{2},1]$. They create equivalent fractions to match benchmarks, comparing fractions using the benchmarks in bare number and story problems. They also demonstrate an understanding that fraction comparisons are valid only if the two fractions refer to the same whole.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 4	9-8 Like Denominators and Numerators	Like denominator - Denominator - Numerator - Order	 Students will compare and order fractions with like denominators. Students will compare and order fractions with like numerators.
	9-9 Class $\frac{1}{2}$ Full or $\frac{2}{4}$ Empty?	Equivalence	Students will use visual models to identify equivalent fractions.
Lesson 5	9-10 Same Fraction, Different Day	Equivalenent	Students will use visual models and multiples to generate equivalent fractions. Students will explain what makes two fractions equivalent.
Lesson 6	9-11 Benchmark Benchmark fraction - Equivalence		Students will identify benchmark fractions. Students will generate fractions equivalent to benchmark fractions.
	9-12 Half or Whole ?	Compare - Equivalent - Benchmark	Students will compare fractions to a benchmark fraction.

Lesson 4

9-8 Like Denominators and Numerator.



Learn

First Compare and order fractions with like denominators

Sara and Laila had two identical bars of chocolate.

Sara ate $\frac{2}{5}$ of her bar. Laila ate $\frac{4}{5}$ of her bar.

Who ate the greater part?

Model $\frac{2}{5}$ and $\frac{4}{5}$ (The colored part shows what each one ate)

Sara Laila

By comparing the colored parts, 2 < 4

So, $\left| \frac{2}{5} < \frac{4}{5} \right|$ So, Laila ate the greater part.



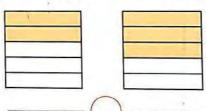
When you compare two fractions, make sure the wholes are the same size.

Example 1

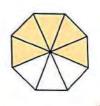
Write the fractions which represent the colored parts.

Compare fractions using "< , = or >".

a.

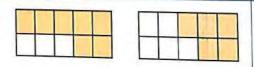


b.

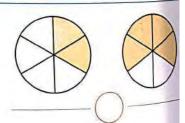




C.



d.



Solution [V]



a.
$$\frac{2}{5}$$
 < $\frac{3}{5}$ | b. $\frac{5}{8}$ > $\frac{4}{8}$ | c. $\frac{7}{10}$ > $\frac{5}{10}$ | d. $\frac{2}{6}$ < $\frac{4}{6}$

b.
$$\frac{5}{8}$$
 >

c.
$$\frac{7}{10}$$
 (

d.
$$\frac{2}{6}$$

Notes for parents:

• Ask your child to draw a model to compare $\frac{3}{4}$ and $\frac{2}{4}$.



When you compare fractions with like dominant of a moly compare the numerators. The one with the greater numerator is the greater

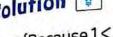
For example:

 $\frac{3}{7} > \frac{3}{7}$ because they have the same denominator "7" and 5 > 3

Example 2

Compare the following fractions using ">, < or =". a. $\frac{1}{4}$ b. $\frac{5}{7}$ c. $\frac{3}{8}$ 5 d. $\frac{3}{12}$ $\frac{6}{12}$

solution [



- a. < [Because 1 < 3]
- c. < (Because 3 < 5)

- **b.** > [Because 5 > 2]
- d. < [Because 3 < 6]

Example 3

Write $\frac{7}{9}$, $\frac{1}{9}$, $\frac{6}{9}$, $\frac{2}{9}$ and $\frac{4}{9}$ in an ascending order.

Solution 🕎



 $\frac{1}{9}$, $\frac{2}{9}$, $\frac{4}{9}$, $\frac{6}{9}$, $\frac{7}{9}$

Because the fractions have the same denominator "9" and1 < 2 < 4 < 6 < 7

Remember -

Ascending order is ordering numbers from least to greatest.



Check your understanding

1. Compare. Write ">, < or =" for each [

- a. $\frac{3}{6}$ $\frac{5}{6}$
- **b.** $\frac{1}{10}$ $\frac{7}{10}$

c. $\frac{7}{12}$ $\frac{5}{12}$

2. Write the fractions in an ascending order.

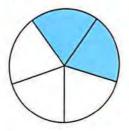
- a. $\frac{2}{7}$, $\frac{5}{7}$, $\frac{1}{7}$ and $\frac{4}{7}$
- b. $\frac{9}{12}$, $\frac{1}{12}$, $\frac{6}{12}$, $\frac{8}{12}$ and $\frac{3}{12}$

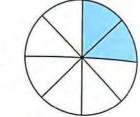
^{*}Ask your child to compare numerators to determine which fraction is greater when comparing fractions with

Second

Compare and order fractions with like numerators

How can you compare $\frac{2}{5}$ and $\frac{2}{8}$?





ERROR ALERT

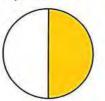
By comparing the colored parts, you get $\left| \frac{2}{5} > \frac{2}{8} \right|$

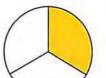
When you compare two fractions, make sure the wholes are the same size.

Example 4

Write the fractions which represent the colored parts, then compare fractions using "< , = or >".

a.







b.





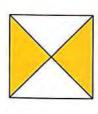
C.

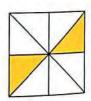






d.





Solution 🕎



b.
$$\frac{2}{7}$$
 < $\frac{2}{5}$

c.
$$\frac{3}{4} > \frac{3}{5}$$

d.
$$\frac{2}{4} > \frac{2}{8}$$

Notes for parents:

• Ask your child to draw a model to compare $\frac{3}{4}$ and $\frac{3}{6}$



When you compare fractions with like numerators, only compare the denominators.

The one with the greater denominator is the smaller

For example:

 $\frac{2}{5} < \frac{2}{3}$ because they have the same numerator "2" and 5 > 3

Example 5

Compare the following fractions using "<, > or =".

- a. $\frac{1}{7}$ b. $\frac{4}{12}$ c. $\frac{3}{5}$ d. $\frac{5}{10}$

solution [

- a. > [Because 9 > 7]
- c. > [Because 10 > 5]

- **b.** < [Because 12 > 6]
 - d. < [Because 11 > 5]

Example 6

Write $\frac{3}{12}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{5}$ and $\frac{3}{10}$ in a descending order.

Solution [V]



$$\frac{3}{5}$$
, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$, $\frac{3}{12}$

Because the fractions have the same numerator "3" and 5 < 7 < 9 < 10 < 12

Remember ----

Descending order is ordering numbers from greatest to least.



Check your understanding

1. Compare. Write ">, < or =" for each

c. $\frac{7}{13}$ $\frac{7}{9}$

2. Write the fractions in a descending order.

- a. $\frac{2}{8}$, $\frac{2}{10}$, $\frac{2}{4}$ and $\frac{2}{5}$
- b. $\frac{4}{7}$, $\frac{4}{11}$, $\frac{4}{5}$, $\frac{4}{8}$ and $\frac{4}{6}$

^{*}Ask your child to compare denominators to determine which fraction is greater when comparing fractions with like numerators.

Exercise

9-8 Like Denominators and Numerators

	11
	REMEMBER
1.	Write the fractions usin
	a.
	d.

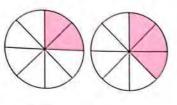
O UNDERSTAND O APPEN

PROBLEM SOLVING

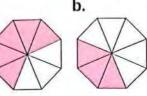
From the school book

THE WAR

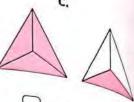
tions which represent the colored parts, then compare each pair of ig the symbols "> , < or =".

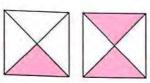


b.

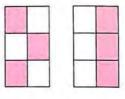


C,

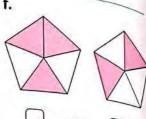




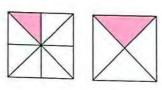
e.



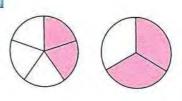
f.



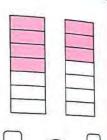
g.



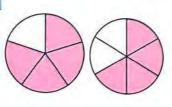
h. 🕮



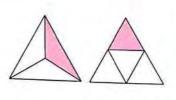
i.



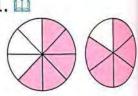
j. 🕮



k.

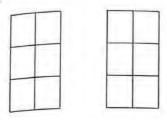


L. III



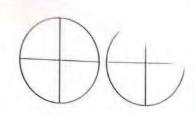
2. Shade each shape to show the manner of the them. then compare the fractions using the symbols ">, < or ="."

a.



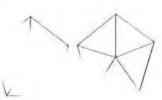
 $\frac{1}{6}$

b. 📖



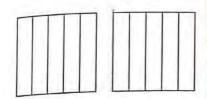
 $\frac{1}{4}$ $\frac{3}{4}$

C.



3 5

d. 🕮

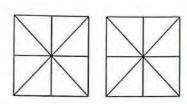


3 5



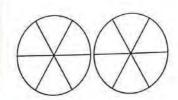
5

e.



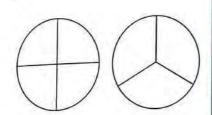
 $\frac{1}{8}$ $\frac{7}{8}$

f. 🛄



 $\frac{5}{6}$ $\frac{4}{6}$

g.

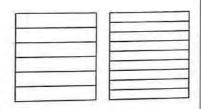


24



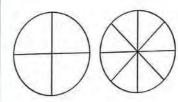
 $\frac{2}{3}$

h.



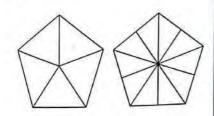
3/6

i.



 $\frac{1}{4}$ $\frac{1}{8}$

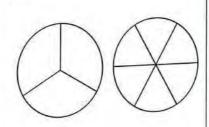
j.



3



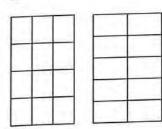
3 10 k.



2/3



L.



<u>6</u> 12



Compare. Write "> , < or =".



g.
$$\frac{1}{10}$$
 $\frac{5}{10}$

j.
$$\frac{1}{5}$$
 $\frac{1}{14}$

m.
$$\frac{2}{9}$$

$$\mathbf{p.} \ \square \ \frac{5}{6} \ \boxed{} \ \frac{5}{8}$$

b.
$$\frac{5}{12}$$

h.
$$\frac{2}{9}$$
 $\frac{4}{9}$

n.
$$\square \frac{4}{8}$$
 $\frac{4}{5}$

q.
$$\frac{6}{6}$$

c.
$$\frac{4}{7}$$
 $\frac{5}{7}$

f.
$$\frac{1}{4}$$
 $\frac{3}{4}$

$$1. \square \frac{3}{6} \qquad \qquad \frac{3}{4}$$

o.
$$\frac{4}{7}$$
 $\frac{4}{10}$

r.
$$\frac{7}{9}$$

Circle the correct fraction.

a.
$$\frac{2}{4} >$$

$$\left[\frac{2}{3} \text{ or } \frac{2}{5} \text{ or } \frac{2}{2}\right]$$
 b. $\frac{1}{5} <$

b.
$$\frac{1}{5} <$$

$$\left[\frac{1}{6} \text{ or } \frac{1}{8} \text{ or } \frac{1}{4}\right]$$

c.
$$<\frac{3}{7}$$

$$\left[\frac{3}{8} \text{ or } \frac{3}{3} \text{ or } \frac{3}{6}\right]$$

d.
$$\frac{4}{6} >$$

$$\left[\frac{4}{5} \text{ or } \frac{4}{4} \text{ or } \frac{4}{9}\right]$$

e.
$$\frac{5}{10}$$
 <

$$\left[\frac{5}{8} \text{ or } \frac{5}{11} \text{ or } \frac{5}{15}\right]$$

f.
$$> \frac{6}{7}$$

$$\left[\frac{6}{8} \text{ or } \frac{6}{6} \text{ or } \frac{6}{9}\right]$$

g.
$$\frac{3}{5}$$
 <

$$\left[\frac{1}{5} \text{ or } \frac{2}{5} \text{ or } \frac{4}{5}\right]$$

h.
$$\frac{7}{10}$$
 <

$$\left[\frac{8}{10} \text{ or } \frac{5}{10} \text{ or } \frac{6}{10}\right]$$

i.
$$< \frac{4}{9}$$

$$\left[\frac{5}{9} \text{ or } \frac{3}{9} \text{ or } \frac{9}{9}\right]$$

$$j. > \frac{8}{11}$$

$$\left[\frac{1}{11} \text{ or } \frac{11}{11} \text{ or } \frac{7}{11}\right]$$

k.
$$\frac{5}{8} >$$

$$\left[\frac{6}{8} \text{ or } \frac{3}{8} \text{ or } \frac{8}{8}\right]$$

$$1. \frac{4}{6} <$$

$$\left[\frac{4}{7} \text{ or } \frac{5}{6} \text{ or } \frac{3}{6}\right]$$

5. Orde following fractions in an ascending order.

a.
$$\frac{3}{5}$$
, $\frac{1}{5}$, $\frac{4}{5}$. $\frac{3}{5}$

c.
$$\square \frac{6}{8}$$
, $\frac{2}{8}$, $\frac{5}{8}$, $\frac{3}{8}$, $\frac{7}{8}$, $\frac{1}{8}$, $\frac{8}{8}$ d. $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{5}$

e.
$$\frac{2}{7}$$
, $\frac{2}{4}$, $\frac{2}{5}$, $\frac{2}{8}$, $\frac{2}{3}$, $\frac{2}{12}$, $\frac{2}{6}$

b.
$$\frac{3}{6}$$
, $\frac{2}{6}$, $\frac{5}{6}$, $\frac{1}{6}$, $\frac{4}{6}$

d.
$$\frac{1}{3}$$
 , $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{5}$

$$\frac{3}{5}$$
, $\frac{3}{8}$, $\frac{3}{3}$, $\frac{3}{6}$, $\frac{3}{12}$

6. Order the following fractions in a descending order.

a.
$$\frac{3}{7}$$
 , $\frac{1}{7}$, $\frac{5}{7}$, $\frac{4}{7}$

c.
$$\frac{9}{10}$$
 , $\frac{6}{10}$, $\frac{7}{10}$, $\frac{5}{10}$, $\frac{2}{10}$

e.
$$\frac{2}{5}$$
, $\frac{2}{9}$, $\frac{2}{7}$, $\frac{2}{3}$, $\frac{2}{10}$

b.
$$\frac{2}{11}$$
 , $\frac{5}{11}$, $\frac{7}{11}$, $\frac{4}{11}$. $\frac{3}{11}$

d.
$$\frac{1}{7}$$
 , $\frac{1}{5}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{10}$

f.
$$\frac{5}{11}$$
, $\frac{5}{6}$, $\frac{5}{7}$, $\frac{5}{9}$, $\frac{5}{5}$

7. put (1) to the correct statement and (X) to the incorrect one.

a.
$$\frac{3}{7} > \frac{1}{7}$$

b.
$$\frac{2}{5} < \frac{2}{7}$$

c.
$$\frac{1}{5} > \frac{1}{10}$$

] d.
$$\frac{7}{10} < \frac{4}{10}$$

e.
$$\frac{5}{5} < 1$$

[] f.
$$1 < \frac{9}{9}$$

g.
$$\frac{5}{5} = \frac{7}{7}$$

] h.
$$\frac{1}{10} + \frac{1}{10} > \frac{1}{5} + \frac{1}{5}$$

i. The fractions $\frac{1}{10}$, $\frac{1}{7}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$ are in an ascending order.

j. The fractions $\frac{8}{9}$, $\frac{7}{9}$, $\frac{5}{9}$, $\frac{3}{9}$, $\frac{1}{9}$ are in a descending order.

1

1

8. 💷 Compare the fraction.

a.
$$\frac{4}{7}$$

b.
$$\frac{5}{10}$$
 $\frac{5}{2}$

c. Do the improper fractions follow the same rule you wrote about how to compare fractions with common numerators? How do you know? Use a model to explain your thinking.

9. D Fractional Candy Bars:

Would you rather have $\frac{5}{12}$ of a candy bar of $\frac{6}{12}$? Use numbers, pictures, or words to explain your thinking.



10. Compare the following fractions using greater than (>) or smaller than (<), then order

from the least to the greatest.

_	4
d.	8

$$\frac{7}{8}$$

$$\frac{2}{8}$$





The order is: -











The order is: -







The order is: -







The order is: -

11. Hady and Ahmed were playing football. Hady scored goals of $\frac{2}{3}$ his football shots while Ahmed scored goals of $\frac{2}{4}$ his football shots. If they made the same number of football shots. Who scored more goals. Use model to explain your thinking.



12. Ganna ate $\frac{3}{6}$ of her kofta and kabab plate. Lamia ate $\frac{3}{4}$ of her plate. If the two plates of kofta and kabab with the same size, who ate more? Use model to explain your thinking.



Challenge

13. Read the following story problem and solve from ⓐ to ⓓ. Sherouk, Yehia and Ziad bought 3 chocolate bars, while they back home. Sherouk ate $\frac{2}{15}$ of her chocolate bar, Yehia ate $\frac{7}{15}$ of his chocolate bar while Ziad ate $\frac{4}{15}$ of his bar. In the next day Sherouk ate $\frac{7}{15}$, Yehia ate $\frac{8}{15}$, and Ziad ate $\frac{10}{15}$



- a. What is the amount of chocolate did each person eat?
- b. What is the remainder amount of chocolate for each person?
- c. Who has the greatest remainder amount of chocolate?
- d. Who has the least remainder amount of chocolate?

Multiple Choice Questions

Choose the correct answer.

- 1. Which of the following fractions is the
- least?
 - **A.** $\frac{1}{5}$

B. $\frac{2}{5}$

c. $\frac{3}{5}$

D. $\frac{5}{5}$

- Which of the following fractions is the greatest?
 - A. $\frac{3}{5}$
 - 5 3
 - c. $\frac{3}{7}$

D. $\frac{3}{9}$

- 3. Which of the following fractions is the greatest?
 - A. $\frac{2}{7}$

B. $\frac{3}{7}$

c. $\frac{5}{7}$

D. $\frac{7}{7}$

- 4. Which of the following fractions is
- the least?
 - A. $\frac{4}{6}$
 - c. $\frac{4}{8}$

- B. $\frac{4}{7}$
- D. $\frac{4}{9}$

- 5. Which of the following sentences
 - is wrong?
 - A. $\frac{1}{3} > \frac{1}{4}$
 - c. $\frac{1}{5} < \frac{1}{4}$
- B. $\frac{1}{4} > \frac{1}{5}$
- D. $\frac{1}{8} < \frac{1}{7}$
- 6. Which of the following sentences
 - is right?
 - A. $\frac{2}{2} < \frac{2}{5}$
 - C. $\frac{2}{3} < \frac{2}{4}$
- **B.** $\frac{2}{8} < \frac{2}{9}$
- D. $\frac{2}{5} > \frac{2}{6}$

- 7. Which of the following sentences
 - is NOT true?
 - A. $\frac{2}{5} > \frac{4}{5}$
- B. $\frac{1}{6} < \frac{3}{6}$
- c. $\frac{6}{7} < \frac{7}{7}$
- D. $\frac{5}{8} > \frac{3}{8}$
- 8. Which of the following sentences
 - is true?
 - A. $\frac{2}{3} > \frac{3}{3}$
 - 3 3 C. $\frac{6}{9} < \frac{4}{9}$
- B. $\frac{1}{4} > \frac{2}{4}$
- D. $\frac{3}{10} < \frac{5}{10}$

- 9. Which choice shows the fractions in an ascending order?
 - A. $\frac{2}{12}$, $\frac{4}{12}$, $\frac{6}{12}$, $\frac{5}{12}$, $\frac{8}{12}$
 - C. $\frac{2}{12}$, $\frac{4}{12}$, $\frac{6}{12}$, $\frac{8}{12}$, $\frac{5}{12}$
- B. $\frac{2}{12}$, $\frac{4}{12}$, $\frac{5}{12}$, $\frac{6}{12}$, $\frac{8}{12}$
- D. $\frac{8}{12}$, $\frac{6}{12}$, $\frac{5}{12}$, $\frac{4}{12}$, $\frac{2}{12}$
- 10. Which choice shows the fractions in a descending order?
 - A. $\frac{3}{10}$, $\frac{3}{9}$, $\frac{3}{7}$, $\frac{3}{5}$, $\frac{3}{3}$
 - C. $\frac{3}{3}$, $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$
- B. $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$, $\frac{3}{3}$
- D. $\frac{3}{3}$, $\frac{3}{10}$, $\frac{3}{9}$, $\frac{3}{7}$, $\frac{3}{5}$

- 9-9 Glass $\frac{1}{2}$ Full or $\frac{2}{4}$ Empty?
- 9-10 Same Fraction, Different Day

Learn

Equivalent fractions

• Fractions that name the same amount are called equivalent fractions.

Problem

Bassem and Mina each had 1 liter of juice.

Bassem drank $\frac{1}{2}$ of his liter.

Mina drank $\frac{2}{4}$ of his liter.





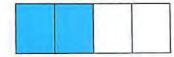
Did Bassem and Mina drink the same amount?

What Bassem drank





What Mina drank





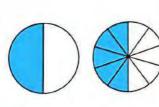
 $\frac{1}{2}$ and $\frac{2}{4}$ show the same amount.

So, Bassem and Mina drank the same amount.

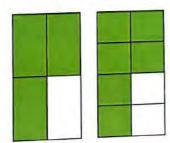
 $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions

$$\frac{1}{2} = \frac{2}{4}$$

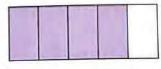
Examples for equivalent fractions



$$\frac{1}{2} = \frac{5}{10}$$



$$\frac{3}{4} = \frac{6}{8}$$



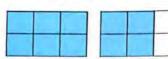


$$\frac{4}{5} = \frac{8}{10}$$

Notes for parents :

• Ask your child to draw a model to compare $\frac{1}{2}$ and $\frac{3}{6}$.

More examples for equivalent fractions





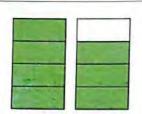








The same of the sa



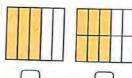




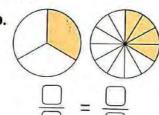


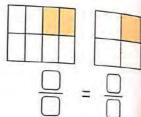
Example 1

Write the equivalent fractions for each.



H = H





Solution 1

a.
$$\frac{3}{5} = \frac{6}{10}$$

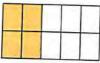
b.
$$\frac{1}{3} = \frac{4}{12}$$

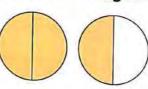
c.
$$\frac{2}{8} = \frac{1}{4}$$

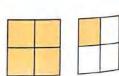
Example 2

Write two equivalent fractions for each of the following models.

a.







Solution [7]

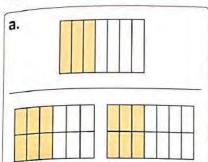
- a. $\frac{4}{10}$ and $\frac{2}{5}$ are two equivalent fractions.
- **b.** Improper fraction $[\frac{3}{2}]$ and mixed number $[1\frac{1}{2}]$ are equivalent.
- **c.** Improper fraction $\left(\frac{5}{4}\right)$ and mixed number $\left(1\frac{1}{4}\right)$ are equivalent.

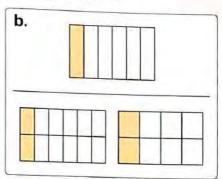
Notes for parents:

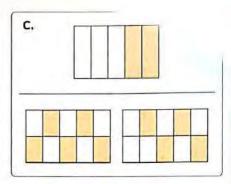
• Ask your child to color and fold a rectangular piece of paper to model an equivalent fraction to $\frac{1}{2}$.

Example 3

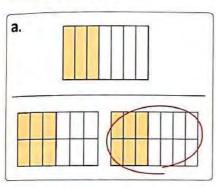
Circle the equivalent fraction to the given one.

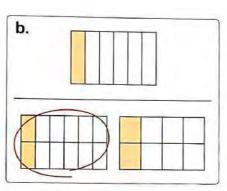


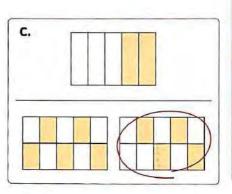




Solution 🕎

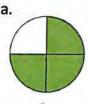




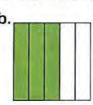


check your understanding

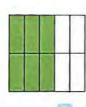
1. Use the models to write the equivalent fractions.



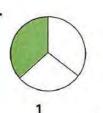




b.



C.

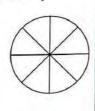


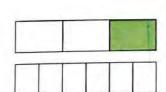


2. Color and write the equivalent fractions.

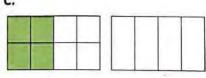
a.







C.



[•] Ask your child to draw models to show an equivalent fraction to $\frac{3}{4}$.

Learn

How can you model the same fraction in different ways?

Equivalent fractions name the same part of a whole or part of a set.

By using the fraction wall, here are some equivalent fractions.

-	1 5
10	10

	1/4		1/4			1/4		
1 12	1 12	1 12	1 12	1 12	112	112	1 12	1 12

$$\frac{1}{5} = \frac{2}{10}$$

$$\frac{3}{4} = \frac{9}{12}$$

$$\frac{2}{3}=\frac{4}{6}$$

$\frac{1}{5} = \frac{2}{10}$ $\frac{3}{4} = \frac{9}{12}$

More example:

$$-\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \cdots$$

			1		
	1/2			1/2	
	1 3		1 3	2	
1/4		1/4		14	1/3
1 5	1 5		1 5	1 5	1/4
15 16 17	1/6	1/6	1/6	1 1 6	15 16
1 7	1 7	1 7	1 7	1 7	1 6
1 0	1 2		1 8	1 8	7 7
1/8 1/9 1/10	$\frac{1}{9}$ $\frac{1}{9}$	1 9			1 1 1
1	9 9 1 1 0 10	1 1 1 10 10	9 1	1 1	9 1
10 1	1 1	10 10 1 1	1 1	10 10	1 1 1
11 1	1 11 1	1 1 1	11 1	1 1	in in in
12 12	12 12	12 12	12	12 12	12 17 17

Example 4

Use the fraction wall. Complete the equivalent fractions.

a.

	1/2	
1/6	1 6	1/6

$$\frac{1}{2} = \frac{1}{6}$$

1	1	-	14	-	14
1 8	1 8	1 8	1 8	1 8	1 8

$$\frac{3}{4} = \frac{}{8}$$

$$\frac{1}{5} = \frac{1}{10}$$

Solution [7]

a. 3

b. 6

c. 2

Example 5

Use the fraction wall. Write the missing numerator.

a.
$$\frac{1}{4} = \frac{1}{12}$$

b.
$$\frac{2}{5} = \frac{10}{10}$$

a.
$$\frac{1}{4} = \frac{1}{12}$$
 b. $\frac{2}{5} = \frac{1}{10}$ c. $\frac{2}{3} = \frac{9}{9}$ d. $\frac{6}{8} = \frac{4}{4}$

d.
$$\frac{6}{8} = \frac{4}{4}$$

Solution [7]



Notes for parents:

• Ask your child to use fraction strips to write three equivalent fractions to $\frac{1}{3}$.

Example 6

By using the fraction wall, write one fraction or more equivalent to the following fractions.

a. $\frac{1}{3}$

b. $\frac{1}{4}$

c. $\frac{2}{3}$

Solution 🕎

$$a. \frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$$

b.
$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$$

c.
$$\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$$



Check your understanding

1. Use the fraction wall to complete the following equivalent fractions.

	1 2
1/4	1/4

C.
$$\frac{1}{3}$$
 $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$

$$\frac{2}{3} =$$

2. Use the fraction wall to complete.

a.
$$\frac{3}{4} = \frac{9}{8} = \frac{9}{8}$$

b.
$$\frac{2}{6} = \frac{4}{6} = \frac{3}{3}$$

^{&#}x27;Ask your child how he/she show that $\frac{1}{6}$ and $\frac{2}{12}$ are equivalent fractions.

Exercise

12

Glass $\frac{1}{2}$ Full or $\frac{2}{4}$ Empty? 9-10 Same Fraction, Different Day

REMEMBER

UNDERSTAND

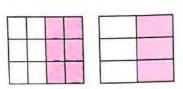
O APPLY

PROBLEM SOLVING

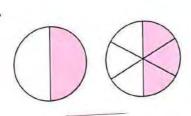
From the school book

Write if the fractions are equivalent or not.

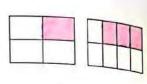
a.



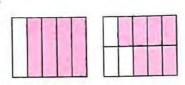
b.



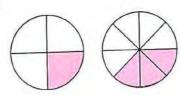
C.



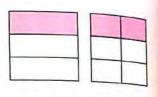
d.



e.

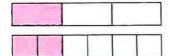


f.

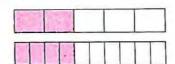


2. Write the missing numerator or denominator.

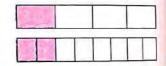
a.
$$\frac{1}{3} = \frac{-}{6}$$



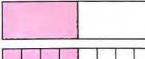
b.
$$\frac{2}{5} = \frac{-}{10}$$



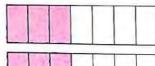
c.
$$\frac{1}{4} = \frac{-}{8}$$



d.
$$\frac{1}{2} = \frac{4}{-}$$



e.
$$\frac{3}{7} = \frac{6}{-}$$





f.
$$\frac{5}{9} = \frac{10}{-}$$



g.
$$\frac{3}{5} = \frac{9}{-}$$

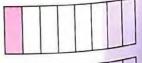


h.
$$\frac{2}{3} = \frac{-}{18}$$





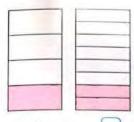
i.
$$\frac{1}{8} = \frac{-}{32}$$





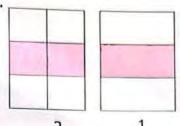
3. Complete to show the equivalent fraction.

a.



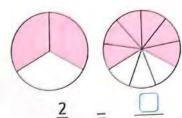
$$\frac{1}{4} = \frac{\square}{8}$$

b.



$$\frac{2}{6}$$
 = $\frac{1}{\Box}$

c. [1]



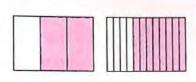
$$\frac{2}{3} = \frac{9}{9}$$

d.



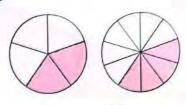
$$\frac{2}{5} = \frac{\Box}{\Box}$$

e.



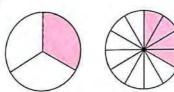
$$\frac{2}{3} = \frac{\Box}{\Box}$$

f.

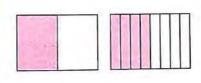


$$\frac{2}{5} = \frac{\Box}{\Box}$$

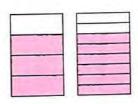
g.



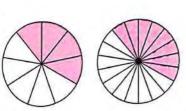
h.



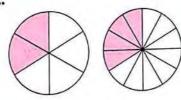
i.



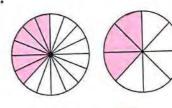
j.



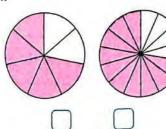
k.



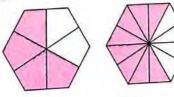
l.



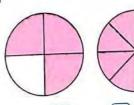
m.



n.

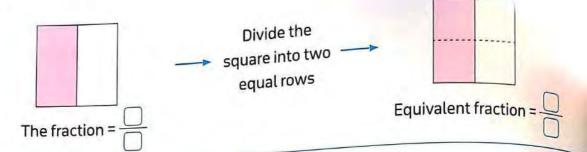


0.

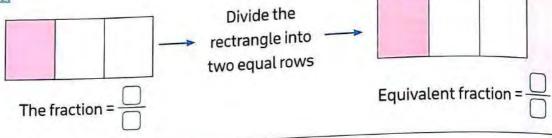


4. Write the fraction which represents the colored part. Follow the order. Write the equivalent fraction.

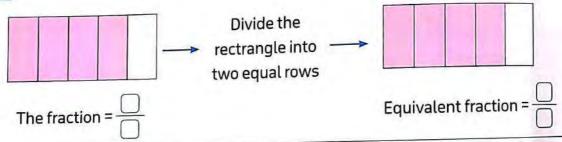
a.



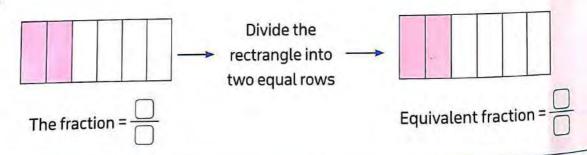
b. 💷



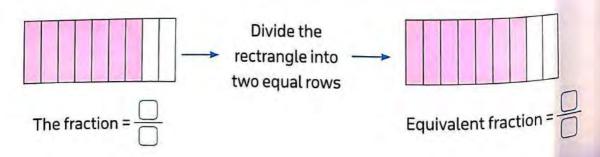
c. 🕮



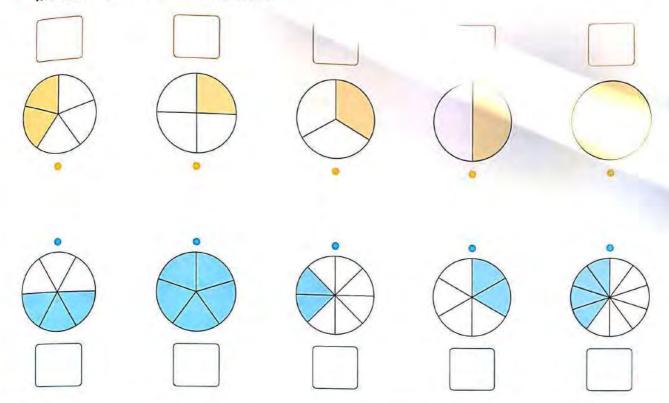
d.



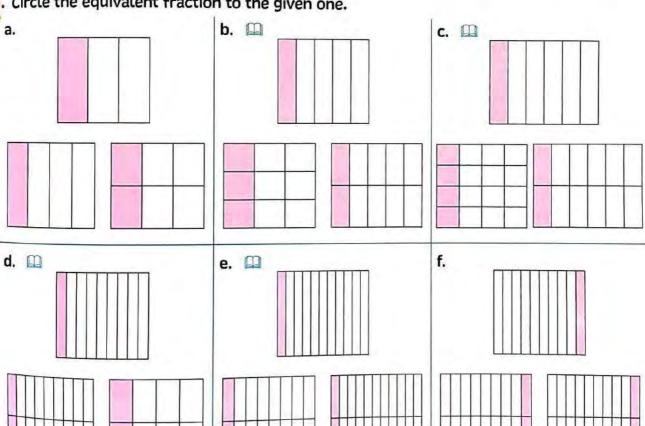
e.



5. Write each fraction which represents the colored part, then match the yellow fraction with the equivalent blue fraction.



6. Circle the equivalent fraction to the given one.



- Draw two models to find an equivalent fraction.
- a. $\frac{1}{2}$

b. $\frac{3}{5}$

- 8. Write the fraction which represents the model in the form of a mixed number and an improper fraction.
 - a. 🕮





Improper fraction ———

Mixed number ———

b. 🕮

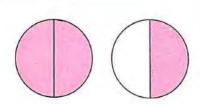




Improper fraction -

Mixed number —

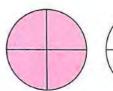
C.



Improper fraction ——

Mixed number —

d.

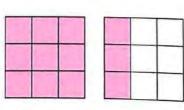




Improper fraction —

Mixed number ———

e.



Improper fraction —

Mixed number ———

f.





Improper fraction —

Mixed number ———

9. Look at the fraction wall.

- 1. Write if each pair of fractions are equivalent or not.
 - **a.** $\frac{2}{5}$ and $\frac{4}{10}$ **b.** $\frac{5}{8}$ and $\frac{2}{3}$

 - c. $\frac{4}{8}$ and $\frac{3}{6}$ d. $\frac{5}{6}$ and $\frac{7}{8}$
 - e. $\frac{1}{2}$ and $\frac{5}{10}$ f. $\frac{2}{3}$ and $\frac{5}{6}$
- 2. \square Record two fractions that are equivalent to $\frac{1}{4}$.
- 3. \square Record two fractions that are equivalent to $\frac{2}{3}$.

		1	1			
	1/2			1	1	
1/3		1/3		1/3		
1/4		1/4	1/4			14
1/5 1/6 1/7 1/8 1/8 1/9 1/9 1/10 1/	1 5	1		1 5		1 5
1/6	1/6	1/6	1/6	1/6		1/6
7	1 7	1 1	7	7	<u>1</u> 7	17
1 1 8 8	1 8	1 8	1 8	1 8	1 8	1 8
$\frac{1}{9}$ $\frac{1}{9}$	1 9	1 1 9	1 9	1 9	1/8	1 9
1 1 10 10	1 1	1 1 10	1 10 1	1 1	1 10	1 10
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 11 11	1 1 1	1 11	1 1	1 1	1 1 5 1 6 1 7 1 8 1 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 12 12 1	1 1 2 12	1 1 12 12	1 1 12 12	1 12	1 1	1 1 12

10. Use the fraction wall. Complete the equivalent fraction.

1			1	
- 3	3	7	3	
1	1	1	1	
+	1	÷	+	
6	6	6	6	

$$\frac{2}{3} = \frac{\Box}{6}$$

b.

<u>1</u> 5	<u>1</u> 5	<u>1</u> 5	1 5	
1 1	1 1	1 1	1 1	
10 10	10 10	10 10	10 10	li.

$$\frac{4}{5} = \frac{\Box}{10}$$

C.

		1 2			
18	1 8	1/8	$\frac{1}{8}$		

$$\frac{1}{2} = \frac{\Box}{8}$$

d.

	$\frac{1}{4}$			1/4			1/4			
1	1	1	1	1	1	1	1	1		:-
12	12	12	12	12	12	12	12	12	- 1	

$$\frac{3}{4} = \frac{12}{12}$$

11. Put (1) for each correct statement and (X) for the incorrect one.

a. The fraction of the red parts is equivalent to the fraction of green parts.





b. The two fractions are equivalent.



c. The fraction for the shaded parts

OKEN

is equivalent to the fraction for the unshader parts.



d. The fraction for the shaded parts is equivalent to the fraction for the unshaded parts.

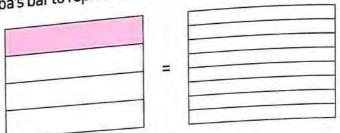


12.

a. Genet and Habiba have the same kind of candy bar.

Genet eats $\frac{1}{4}$ of her candy bar. Habiba eats the same amount.

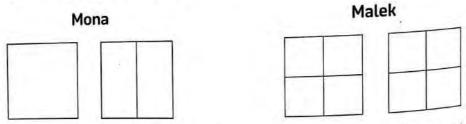
Color in Habiba's bar to represent the amount she ate.



b. Write the fraction showing how much Habiba's bar she ate in the previous item

Genet		Habiba
1/4	=	-

13. \square a. Mona ate $1\frac{1}{2}$ brownies. Her brother Malek ate $\frac{6}{4}$. Color in each person's brownies show the amount that they ate.



b. Who ate more brownies, Mona or Malek? Explain how you know that.

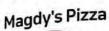
14. Ola ate $1\frac{1}{4}$ of pizza while Basma ate $\frac{5}{4}$ of a pizza of the same size. Draw and color a model to each one of them representing what they ate.

Then show who ate more pizza Ola or Basma?

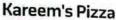
Challenge

Magdy and Kareem enter a pizza eating contest. The person who eats the most pizza wins. Magdy eats pieces of the circle pizza and Kareem eats pieces of the rectangle pizza. They each manage to eat of their pizza. However, Kareem is given the prize. Why?











Samar has a recipe for healthy snack bars that she received from her friend. The recipe uses measuring cups and teaspoons. Her friend sent a $\frac{1}{4}$ cup and $\frac{1}{4}$ teaspoon, so Samar has to rewrite the recipe using equivalent fractions.



[Hint: Think about an equivalent fraction for $\frac{1}{2}$ using fourths.]

Healthy Snack Bars

Ingredients:

- $\frac{1}{2}$ cup rolled oats.
- ·2cups crispy rice cereal.
- $\frac{1}{4}$ cup honey.

- $1\frac{1}{2}$ cups peanut butter.
- $\frac{1}{2}$ teaspoon of vanilla.
- 1 cup chocolate chips.

Rewrite:

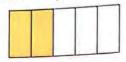
- a, ____ cup rolled oats.
- c. ____ cup crispy rice cereal.
- e, ____ cup honey.

- b. _____ cup peanut butter.
- d. _____ teaspoon of vanilla.
- f. ____ cup chocolate chips.

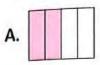
Multiple Choice supplient

Choose the correct answer.

1. Which fraction is equivalent to this?



- А.
- В.
- C.
- D.
- 2. Which of the following equivalent to the given fraction?

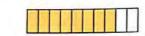




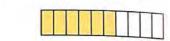




3. Which model is equivalent to this?



- A. _____
- В.
- C.
- D.
- 4. Which model is equivalent to this?



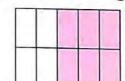
- A. _____
- В.
- C. _____
- D.

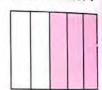
- 5. What is the missing numerator?



- $\frac{1}{3}$ = $\frac{1}{3}$
- A. 1
- B. 2
- **C**. 3
- D. 6

6. What is the missing denominator?

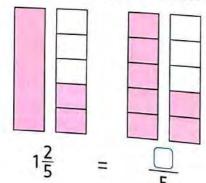




- 0
- =
- 3

- **A.** 3
- **B**. 5
- C. 6
- D. 10

7. What is the missing numerator?



- A. 2
- **B.** 5
- C. 7
- D. 10

8. What is the equivalent fraction to $\frac{1}{3}$?

1	1	1
3	1/2	3
	-	-

A. $\frac{2}{6}$

B. $\frac{4}{6}$

 $C. \frac{2}{8}$

D. 3

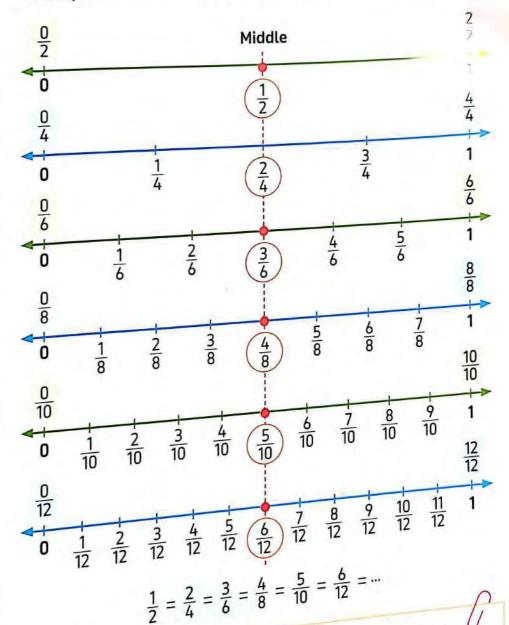
1 Benchmark Fractions

9-12 Half or Whole?

Learn

Benchmark fractions

- Benchmark fractions are continued beat trons that you can use to judge and compare other fractions.
- 0, $\frac{1}{2}$ and 1 is benchmark fractions, the transfer lines show the equivalent fractions to these benchmark



In each fraction of $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$ and $\frac{6}{12}$,... the numerator is equal to half the denominator.

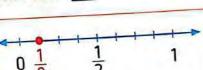
• Ask your child to draw models to check that $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \cdots$

Example 1

Find benchmarks for $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$

Locate each fraction on a number line. Decide if the fraction is closer to $0, \frac{1}{2}$ or 1

Solution [V]



So, $\frac{1}{8}$ is closer to 0



So, $\frac{5}{8}$ is closer to $\frac{1}{2}$.



So, $\frac{7}{8}$ is closer to 1

Remarks

If the numerator is much less than half the denominator, the fraction is closer to 0

If the numerator is about half the denominator, the fraction is closer to $\frac{1}{2}$

If the numerator is much more than half the denominator, the fraction is closer to 1

For example:

- For $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$, half of the denominator is 4
- For $\frac{1}{8}$, 1 is much less than 4.50, $\frac{1}{8}$ is closer to 0
- For $\frac{5}{8}$, 5 is about 4. So, $\frac{5}{8}$ is closer to $\frac{1}{2}$
- For $\frac{7}{8}$, 7 is much more than 4.50, $\frac{7}{8}$ is closer to 1

check your understanding

1. Circle all fractions that are equivalent to $\frac{1}{2}$

2. Write whether the fraction is closer to $0, \frac{1}{2}$ or 1. Use the number line.

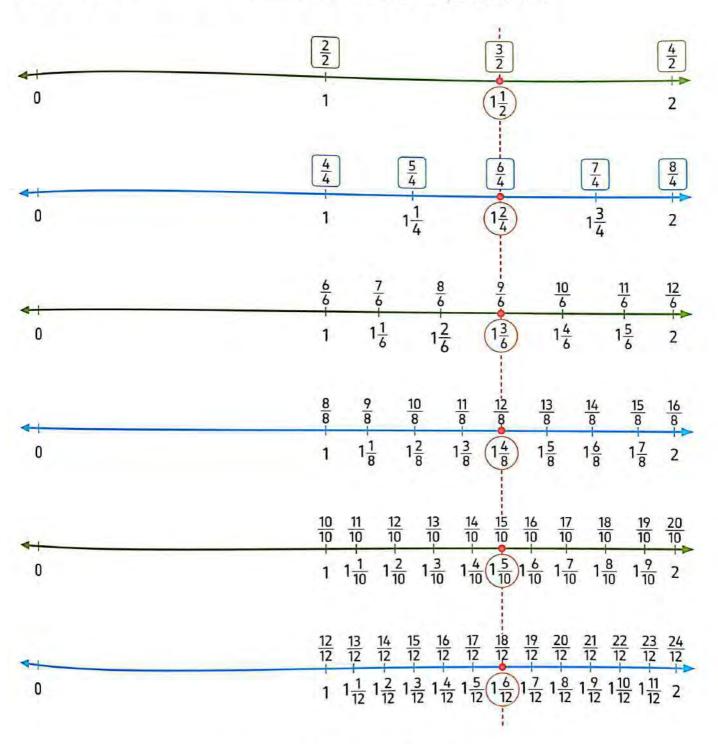
c. $\frac{2}{10}$

Notes for parents:

• Ask your child how he/she know that $\frac{7}{10}$ is closer to $\frac{1}{2}$ than 1

More benchmark fractions

• $1\frac{1}{2}$ and 2 are also benchmark fractions you can use to compare fractions.



$$1\frac{1}{2} = 1\frac{2}{4} = 1\frac{3}{6} = 1\frac{4}{8} = 1\frac{5}{10} = 1\frac{6}{12} = \cdots$$

$$\frac{3}{2} = \frac{6}{4} = \frac{9}{6} = \frac{12}{8} = \frac{15}{10} = \frac{18}{12} = \cdots$$

^{*}Ask your child to write an equivalent fraction to the benchmark fraction $1\frac{1}{2}$

Learn

Comparing fractions using benchmark fractions

you can decide if a fraction is greater or less than a benchmark fraction (one half or one whole) and use this to compare two fractions indirectly.

Frample 3

Compare $\frac{3}{4}$ and $\frac{1}{6}$ using benchmark fractions.

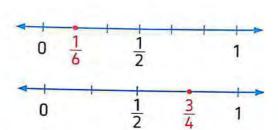
Solution [V]



 $\frac{1}{\lambda} < \frac{1}{2}$ because 1 is less than half of 6.

 $\frac{3}{4} > \frac{1}{2}$ because 3 is greater than half of 4.

So, $\frac{3}{4} > \frac{1}{6}$



Example 4

Use benchmark fractions to compare. Write "< , > or =".

- b. $\frac{3}{6}$

Solution [7]

a.
$$\frac{5}{10} = \frac{1}{2}$$

 $\frac{5}{8} > \frac{1}{2}$ because 5 is greater than half of 8

So, $\frac{5}{10} < \frac{5}{8}$

Another Solution:

 $\frac{5}{10}$ < $\frac{5}{8}$ because they have the same numerator and 10 > 8

Remind your child how he/she compare two fractions having the same numerator. Let him/her compare only the denominators.

Lesson 6

- b. $\frac{3}{6} = \frac{1}{2}$
- $\frac{4}{12} < \frac{1}{2}$ because 4 is less than half of 12
- So, $\frac{3}{6} > \frac{4}{12}$
- d. $\frac{4}{10} < \frac{1}{2}$ because 4 is less than half of 10
 - $\frac{5}{6} > \frac{1}{2}$ because 5 is greater than half of 6
 - So, $\frac{4}{10} \le \frac{5}{6}$

c. $\frac{1}{5} > 0$



- e. $\frac{3}{8} < \frac{1}{2}$ because 3 is less than half of 8
 - $\frac{3}{4} > \frac{1}{2}$ because 3 is greater than half of 4
 - $50, \frac{3}{8} < \frac{3}{4}$

- Another Solution:
- $\frac{3}{8} < \frac{3}{4}$ because they have the same numerator and 8 > 4

- f. $\frac{11}{12} > \frac{1}{2}$ and $\frac{4}{9} < \frac{1}{2}$
- $50, \frac{11}{12} \ge \frac{4}{9}$

- g. $\frac{7}{6} > 1$ because it is an improper fraction
 - 5 < 1 because it is a proper fraction.
 - So, $\frac{7}{6} > \frac{5}{7}$

- h. $\frac{6}{12} = \frac{1}{2}$ and $\frac{4}{8} = \frac{1}{2}$
 - $50, \frac{6}{12} = \frac{4}{8}$

- i. 1 < 8
 - because $\frac{8}{5}$ is an improper fraction.

Remarks

- 1. Any proper fraction is smaller than 1, for example: $\frac{2}{3} < 1$
- 2. Any improper fraction is greater than or equal to 1, for example : $\frac{7}{4} > 1$
- 3. Any improper fraction is greater than any proper fraction, for example: $\frac{11}{5} > \frac{5}{6}$

Notes for parents:

 Remind your child that any improper fraction is greater than any proper fraction, because any improper fraction is greater than or equal to 1 feet. fraction is greater than or equal to 1 but any proper fraction is smaller than 1. 154

Example 1 or $\frac{7}{8}$, $\frac{5}{10}$, $\frac{2}{6}$ in an ascending order.

colution 👰

 $\frac{1}{8} > \frac{1}{2}$ because 7 is greater than half of 8.

 $\frac{2}{\delta} < \frac{1}{2}$ because 2 is less than half of 6.

$$\frac{2}{6}$$
 $\frac{2}{2}$ So, the order is: $\frac{2}{6}$, $\frac{5}{10}$, $\frac{7}{8}$



Bassem and Andy were eating same-sized sandwich. Bassem's sandwich was cut into 6 equal parts and Andy's sandwich was cut into 4 equal parts. Each of them ate 3 parts of his sandwich.

Who ate the most?

solution [V]

- Bassem ate = $\frac{3}{4}$
- Andy ate = $\frac{3}{4}$
- $\frac{3}{6} = \frac{1}{2}$ and $\frac{3}{4} > \frac{1}{2}$ So, $\frac{3}{4} > \frac{3}{6}$
- So, Andy ate the most.



√ dheck your understanding

1. Use benchmark fractions to compare. Write "< ,> or =".

- a. $\frac{7}{18}$ $\frac{3}{4}$ $\frac{3}{6}$
- b. $\frac{10}{20}$ $\frac{9}{16}$ c. $\frac{7}{12}$ $\frac{10}{10}$ e. 0 $\frac{2}{3}$ f. $\frac{10}{7}$ 1
- 2. Put the fractions $\frac{4}{6}$, $\frac{5}{12}$, $\frac{4}{8}$ in a descending order.
- 3. Mazen jogged for $\frac{2}{4}$ hour. He swam for $\frac{5}{6}$ hour. Which activity took longer? Explain.
- 'Help your child how he/she can use benchmark fractions to compare $\frac{7}{18}$ and $\frac{3}{4}$

Exercise 13

9-11 Benchmark Fractions

9-12 Half or Whole?

OREMEMBER OUNDERSTAND ORPOTT

PROBLEM SOLVING

From the school book

First: Problems on benchmark fractions

1. Write whether the fraction is closest to $0, \frac{1}{2}$, or 1.

a. Use the number line.

b. Use the number line.

2. Locate each fraction on the number line, then decide whether the fraction is closer to zero, half or one, then check the suitable box.

Fraction	Number line	0	1 2	1
2/4	0	1		
1/6	* 0	1		
7 8	0	1		
4/10	∢ + 0	1		

3. Draw a line between each fraction and its equivalent benchmark fraction. (Some benchmark fractions can be connected to more than one fraction)



24

03

64

9 18

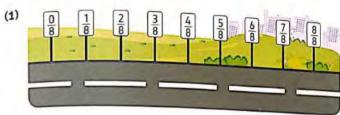
8 4

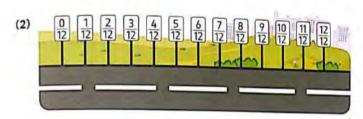
15 10

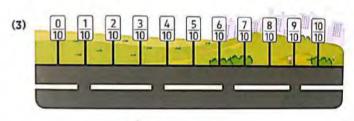
600

4. (1) Sherif was in charge of placing benches along a 1 kilometer walking path in Cairo. He was supposed to put the benches at the beginning, middle, and end of the path.

a. At what kilometer marker posts should Sherif put benches ? Draw benches in the appropriate spots along the path.



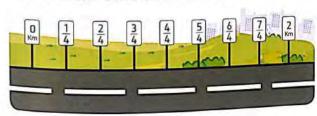




b. For Sherif's next job, the path is 2-kilometers long. He must place a bench every

 $\frac{1}{2}$ kilometer from the beginning to end. Where should he place them?

Draw benches in the appropriate spots along the path.



Second: Problems on comparing fractions using benchmarks 1. Use benchmarks to compare. Complete the answer of each problem.

- a. Compare $\frac{3}{4}$ and $\frac{2}{6}$ Because $\frac{3}{4}$ $\frac{1}{2}$, and $\frac{1}{2}$ $\frac{2}{6}$
- b. Compare $\frac{6}{8}$ and $\frac{11}{9}$ Because $\frac{6}{8}$ 1, and 1 $\frac{11}{8}$
- So, $\frac{3}{4} = \frac{2}{6}$
- So, $\frac{6}{9}$ $\frac{11}{9}$
- c. Compare $\frac{9}{7}$ and $\frac{5}{6}$ Because $\frac{9}{7}$ 1, and 1 $\frac{5}{6}$
- d. Compare $\frac{7}{12}$ and $\frac{6}{14}$ Because $\frac{7}{12}$ $\frac{1}{2}$, and $\frac{1}{2}$ $\frac{6}{14}$ So, $\frac{7}{12}$ $\frac{6}{14}$

2. Compare. Write "< , > or =".

So, $\frac{9}{7}$ $\frac{5}{6}$

- a. $\frac{4}{7}$ $\frac{1}{2}$ b. $\frac{7}{8}$ $\frac{1}{2}$

c. 8 1

- d. $\frac{5}{10}$ e. $\frac{4}{8}$ $\frac{6}{12}$
- f. $\frac{10}{20}$ $\frac{11}{18}$

- g. $\frac{3}{4}$ $\frac{3}{10}$ h. $\frac{5}{6}$ $\frac{5}{12}$ i. $\frac{5}{6}$ $\frac{3}{10}$

- j. $\frac{11}{18}$ $\frac{9}{5}$ k. $\frac{6}{14}$ $\frac{7}{10}$
- $l. \frac{9}{8} \qquad \frac{8}{9}$

3. Put (/) to the correct statement and (X) to the incorrect one.

- a. $\frac{1}{2} = \frac{6}{12}$
- b. $\frac{5}{8} < \frac{1}{2}$

- c. $\frac{6}{12} > \frac{5}{7}$
- d. $\frac{10}{20} > \frac{1}{2}$

- e. $\frac{3}{6} < \frac{3}{8}$

- $f. \frac{4}{5} > \frac{8}{16}$
- $g, \frac{5}{6} = \frac{6}{5}$
- h. $\frac{9}{5} < \frac{11}{15}$

- i. $\frac{3}{4} > \frac{1}{8}$
- j. $\frac{7}{18} < \frac{5}{9}$

 $k. \frac{9}{9} > \frac{7}{7}$

158

- $1.\frac{5}{4} > 1$

4. Use the benchmark fractions 0, $\frac{1}{2}$ and 1 to order each group of the fractions, a. $\frac{3}{6}$, $\frac{6}{8}$, $\frac{2}{10}$

[From the least to the greatest]

 $b. \frac{5}{10}, \frac{2}{6}, \frac{7}{12}$

[From the least to the greatest]

 $c, \frac{1}{4}, \frac{9}{9}, \frac{5}{6}$

[From the greatest to the least]

 $\frac{10}{11}$, $\frac{5}{5}$, $\frac{10}{20}$

[From the greatest to the least]

5. a. Circle the fraction which is closer to $\frac{1}{2}$, be not greater than it.

$$\frac{8}{12}$$
, $\frac{2}{5}$

b. Circle the fraction which is closer to $\frac{1}{2}$, but not equal to $\frac{1}{2}$

$$\frac{2}{4}$$
, $\frac{7}{16}$

Story Problems

- 1. Use a Benchmark For her birthday party, Menna made two cakes because she had so many friends coming. The two cakes were the same size. Her mom cut one cake into 10 pieces and the other into 6 pieces. $\frac{5}{10}$ of one cake was eaten and $\frac{5}{6}$ of the other cake was eaten. Which cake had more eaten? Use benchmark fractions to solve the problem.
- 2. Two buckets are the same size. Bucket 1 is $\frac{5}{9}$ full of water. Bucket 2 is $\frac{5}{10}$ full of water. Which bucket has less water?
- Rashad and Malek each got a candy bar that was the same size. Rashed ate $\frac{4}{6}$ of his candy bar and Malek ate $\frac{4}{8}$ of his.

Who ate more than $\frac{1}{2}$? How do you know?

4. A Mariam and Jana each had identical sandwiches. Mariam cut her sandwich into 12 pieces and ate 4 of them. Jana cut hers into 6 pieces and ate 3. Who ate more? How do you know?



Sandwich wrap

- 5. At basketball practice, Hatem made 14 of his 18 shots. His best friend, Amir made 8 of his 16 shots. Who made a larger fraction of the shots taken?
- 6. \square Mazen and Ezz each had a candy bar. They each ate $\frac{1}{2}$ of the bar, but Mazen ate more candy than Ezz. How is this possible? Use a model to explain to explain your thinking
- 7. Amir ate $\frac{3}{9}$ of a candy bar. Sarah ate $\frac{5}{8}$ of a candy bar of the same type and size. Who ate more than half?

Challenge

- 8. Which makes this true? Use benchmark fraction.
- a. 4
- b. 8

d. 10

Multiple Choice Questions

thoose the correct answer.

- 1. Which of the following fractions is $\frac{1}{6}$ equal to $\frac{1}{2}$?

- 2. Which of the following fractions is greater to $\frac{1}{2}$?
 - A. $\frac{2}{4}$

- Which of the following fractions is less than $\frac{1}{2}$?
- A. 3

- 4. Which of the following fractions is closest to $\frac{1}{2}$?

A. $\frac{4}{5}$

- 5. Which of the following fractions is closest to 1?

- 6. Which of the following fractions is greater than 1?

- 7. Which of the following fractions is the greatest?

- 8. Which of the following fractions is the smallest?
- $^{9.~Which}$ of the following shows the fractions ordered from the least to the greatest ?
- A. $\frac{2}{10}$, $\frac{5}{10}$, $\frac{9}{10}$
- $c, \frac{2}{10}, \frac{9}{10}, \frac{5}{10}$

- B. $\frac{5}{10}$, $\frac{2}{10}$, $\frac{9}{10}$
- D. $\frac{9}{10}$, $\frac{5}{10}$, $\frac{2}{10}$
- 10. Which of the following shows the fractions ordered from the greatest to the least?
- A, $\frac{6}{12}$, $\frac{5}{6}$, $\frac{3}{10}$
- $c, \frac{3}{10}, \frac{6}{12}, \frac{5}{6}$

- B. $\frac{5}{6}$, $\frac{6}{12}$, $\frac{3}{10}$
- D. $\frac{6}{12}$, $\frac{3}{10}$, $\frac{5}{6}$



9-13 Fractions and Identity Property

9-14 Different Numbers, Same Value

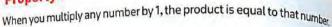
9-15 Many Missing Multiples



Learn

Fractions and the identity property (Equivalent fractions)





• This property is called identity property of multiplication.

1 is called the multiplicative identity element.



For example: • 35 × 1 = 35

$$\cdot$$
 1 × 3,205 = 3,205

$$\frac{1}{2} \times 1 = \frac{1}{2}$$

$$\bullet \ 1 \times \frac{5}{8} = \frac{5}{8}$$





$$\frac{1}{2} \times 1 = \frac{1}{2}$$

You can write 1 as a fraction.

$$1 = \frac{2}{2}$$

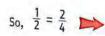
Then,
$$\frac{1}{2} \times \frac{2}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$$



Remember

Equivalent fractions are fractions have the same value, even though they may look different.





So, $\frac{1}{2} = \frac{2}{4}$ \longrightarrow $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions.

Notes for parents:

Remind your child that 1 is the identety element in multiplication operation. Let him be use that to find equivalent from: use that to find equivalent fractions.

Learn

Different numbers, same value (Many missing multiples)

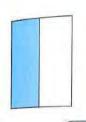
There are many ways to write 1 as a fraction.

In every case, the numerator and denominator are the same.

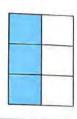
$$1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \cdots$$

$$\frac{1}{50, \frac{1}{2}} = \frac{1}{2} \times \frac{2}{2} = \frac{1}{2} \times \frac{3}{3} = \frac{1}{2} \times \frac{4}{4} = \frac{1}{2} \times \frac{5}{5} = \dots$$

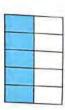
$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \cdots$$





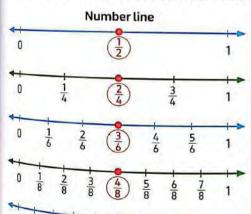


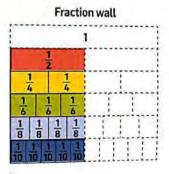




 $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$ and $\frac{5}{10}$ are all equivalent fractions.

· You can use a number line and a fraction wall to show the equivalent fractions.





$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$$

Your child can use multiply by 1 to find more equivalent fractions.

 $\frac{5}{10}$ $\frac{6}{10}$ $\frac{7}{10}$

Learn How can you find equivalent fractions using multiplication or division?

- You can multiply both the numerator and denominator of a fraction by any number except zero to find equivalent fractions.
- zero to find equivalent that a common factor, you can also divide both by that factor to find an equivalent fraction.

Example 1

Find two fractions that are equivalent to $\frac{4}{9}$

Solution [7]

One Way Use multiplication

Multiply both the numerator and denominator by the same non zero number. The number 2 is easy to use, so multiply the numerator and denominator by 2.

$$\frac{4}{8} = \frac{4 \times 12}{8 \times 12} = \frac{8}{16}$$

Another Way Use division

Divide both the numerator and denominator by the same non zero number The number 4 is a common factor, so divide the numerator and denominator by 4.

$$\frac{4}{8} = \frac{4 \div 4}{8 \div 4} = \frac{1}{2}$$

So, $\frac{4}{8}$, $\frac{8}{16}$ and $\frac{1}{2}$ are all equivalent fractions.

More examples:





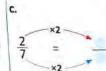




gieda your understanding

Complete to find equivalent fractions.





Notes for parents:

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• Give your child fraction as $\frac{8}{12}$, ask him/her to find equivalent fractions, once by multiplication and another t^{\dagger} division.

Remember

How to find the missing numerator or denominator

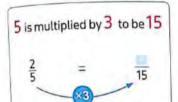
to find the missing numerator, decide if the denominator is multiplied or divided by a number, then do the same with numerator.

Example 2

_{find} the missing numerator or denominator.

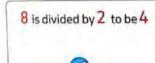
b. $\frac{8}{12} = \frac{4}{12}$

solution 💟





Multiply 2 by 3 also , you will get 6 in the numerator 6







Divide 12 by 2 also, you will get 6 in the denominator

dieck your understanding

Complete.

a.
$$\frac{2}{3} = \frac{1}{9}$$

b.
$$\frac{4}{6} = \frac{12}{12}$$

c.
$$\frac{3}{6} = \frac{1}{2}$$

d.
$$\frac{2}{7} = \frac{1}{14}$$

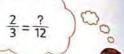
e.
$$\frac{8}{10} = \frac{4}{10}$$

f.
$$\frac{10}{6} = \frac{10}{12}$$

Ask your child how he/she find the missing numerator in $(\frac{1}{5} = \frac{?}{10})$ and how he/she find the missing Genominator in $(\frac{12}{15} = \frac{4}{?})$.

Example 3

Amgad has 12 marbles. $\frac{2}{3}$ of them are red. What is the number of red marbles does Amgad have?



Solution 👰

$$\frac{2}{3} = \frac{?}{12}$$

$$\frac{2}{3} = \frac{8}{12}$$

The number of red marbles is 8 marbles.



Vi dieds your understanding

Mai baked 24 pieces of cake. If $\frac{3}{4}$ of them are with chocolate cake.

What is the number of chocolate cake she baked?

Enrich your knowledge

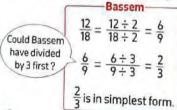
Simplest form

A fraction is in simplest form when 1 is the only number that divides both the numerator and the denominator with no remainder.

> These fractions are in simplest form. $\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{8}$ $\frac{2}{7}$ $\frac{5}{9}$

These fractions are not in simplest form.

Bassem and Marwan both used equivalent fractions to write $\frac{12}{18}$ in simplest form.



-Marwan-6 is the greatest common factor between 6 and 12 $\frac{2}{3}$ is in simplest form.

 $\frac{2}{3}$ is in simplest form because 1 is the only number that can divide both 2 and 3 with no remainder.

Notes for parents :

Ask your child to read the story problem carefully, then plane and solve.

Exercise 14

9-13 Fractions and Identity Property

9-14 Different Numbers, Same Value 9-15 Many Missing Multiples

UNDERSTAND

O APPLY

e.

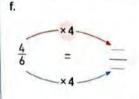
PROBLEM SOLVING

From the school book

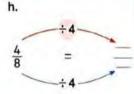
1. Complete to find an equivalent fraction.

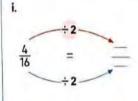
b.

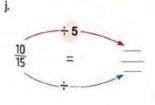
C.

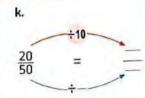


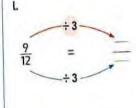
g.











Complete to find an equivalent fraction.

a.
$$\frac{2}{3} \times \frac{4}{4} =$$

$$\frac{1}{11} \times \frac{9}{2} = ---$$

b.
$$\frac{3}{4} \times \frac{5}{5} = -----$$

e.
$$\frac{7}{9} \times \frac{8}{8} = ------$$

c.
$$\frac{6}{7} \times \frac{3}{3} = ----$$

a.
$$\frac{2}{3} \times \frac{4}{4} =$$
b. $\frac{3}{4} \times \frac{5}{5} =$
c. $\frac{6}{7} \times \frac{3}{3} =$
d. $\frac{9}{11} \times \frac{2}{2} =$
e. $\frac{7}{9} \times \frac{8}{8} =$
f. $\frac{8}{13} \times \frac{10}{10} =$

3. Find a fraction equivalent to each. a. $\frac{1}{6} =$ b. $\frac{2}{3} =$ c. $\frac{4}{12} =$ d. $\frac{2}{10} =$

d.
$$\frac{2}{10} = -$$

e. $\frac{10}{15}$ = $\frac{4}{4}$ = $\frac{20}{25}$ = $\frac{7}{8}$ = $\frac{7}{8}$

4. Write three equivalent fractions to each.

a.
$$\frac{2}{5} = - = - = -$$

b.
$$\frac{4}{12} = \frac{}{} = \frac{}{} = \frac{}{}$$

c.
$$\frac{4}{6} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2}$$

d.
$$\frac{4}{10} = \frac{}{} = \frac{}{} = \frac{}{}$$

e.
$$\frac{3}{9} = - = - = -$$

f.
$$\frac{4}{20} = \frac{}{} = \frac{}{} = \frac{}{}$$

Generate at least 5 equivalent fractions for each fraction.

 $a. \frac{2}{3};$;;; -......

b. \vdots ; \vdots ; \vdots ; \vdots

d. $; \frac{3}{6}; ---; ---; ----; ----;$

6. Determine whether each fraction pair is equivalent. If it is, write "true." If it is not, write "false.".

a. $\frac{2}{3} = \frac{6}{9}$ b. $\frac{3}{4} = \frac{6}{8}$ c. $\frac{7}{8} = \frac{2}{3}$

d. $\Box \frac{3}{5} = \frac{6}{8}$ e. $\Box \frac{6}{10} = \frac{2}{5}$ f. $\frac{8}{12} = \frac{4}{6}$

g. $\square \frac{2}{8} = \frac{1}{4}$ h. $\square \frac{9}{12} = \frac{2}{4}$ i. $\square \square \frac{3}{8} = \frac{1}{6}$

j. $\Box \frac{1}{3} = \frac{4}{12}$ k. $\frac{6}{8} = \frac{30}{40}$ l. $\frac{15}{25} = \frac{4}{5}$

7. Find the missing numerator or denominator to make the fractions equivalent. Record what factor you multiplied or divided by. Record What is $\frac{1}{4} = \frac{1}{12}$ b. $\frac{2}{3} = \frac{1}{9}$ c. $\frac{2}{4} = \frac{1}{12}$ d. $\frac{3}{4} = \frac{1}{12}$ e. $\frac{20}{25} = \frac{1}{5}$ f. $\frac{5}{7} = \frac{1}{21}$ g. $\frac{2}{9} = \frac{10}{12}$ h. $\frac{5}{15} = \frac{15}{15}$

j. $\Box \frac{10}{70} = \frac{10}{7}$ j. $\Box \frac{12}{18} = \frac{4}{12}$ k. $\frac{6}{12} = \frac{12}{42}$

 $L = \frac{15}{4}$

 $\frac{7}{13} = \frac{21}{13}$ n. $\frac{18}{36} = \frac{3}{12}$ o. $3 = \frac{12}{12}$

p. $5 = \frac{10}{10}$

8. Find the value of X.

a. $\frac{9}{12} = \frac{X}{4}$ b. $\frac{18}{27} = \frac{2}{X}$ c. $\frac{X}{5} = \frac{15}{15}$

d. $\frac{X}{4} = \frac{2}{8}$

e. $\frac{10}{X} = \frac{2}{3}$ f. $\frac{X}{42} = \frac{1}{7}$

9. put (/) for the correct statement and (X) for the incorrect one.

a. Fractions that name the same amount are unit fractions.

b. You can multiply the same number by the numerator and denominator to find equivalent fractions.

c. You can add the same number to the numerator and denominator to find equivalent fractions.

d. 0 is the identity element in the multiplication operation.

e. The two fractions $\frac{6}{15}$ and $\frac{2}{5}$ are equivalent. f. The two fractions $\frac{2}{8}$ and $\frac{4}{16}$ are equivalent.

9. $\frac{3}{4} = \frac{21}{28}$ [] $h. \frac{18}{36} = \frac{2}{6}$

i. If $\frac{3}{5} = \frac{X}{15}$, then X = 9 [] $j. \frac{4}{4} = \frac{8}{X}$, then X = 4

10. Match each fraction to its equivalent fraction.

14 16

15 40

5 5

1 2

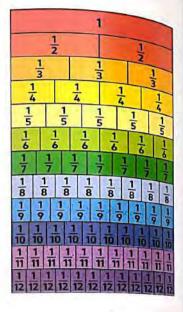
00/00

4/8

28

7 8

- 11. \(\sumsymbol{\substack}\) Use the fraction wall to answer the questions.
 - a. How many halves are in 1 whole ? Using halves, how would you write 1 whole as a fraction.
 - b. How many fourths are in 1 whole? Use fourths, how would you write 1 whole as a fraction.
 - c. How many tenths are in 1 whole? Use tenths, how would you write 1 whole as a fraction.
 - d. Explain the pattern and why each of the fractions you wrote equals
 - 1 whole. e. Using what you know, how many 25ths are in 1 whole?
- 12. Write about it. Tony says that $\frac{2}{3}$ and $\frac{16}{25}$ are equivalent fractions. Is he correct? Explain your thinking.
- 13. Can you add the same number to the numerator and denominator to find equivalent fractions? Why or why not? Give an example.
- 14. Explain why $\frac{6}{9}$ is not equivalent to $\frac{9}{12}$.



There are 16 birds on a tree. $\frac{3}{4}$ of them flew away. What is the number of birds that flew away?



16. \square Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip. Haw many cookies were chocolate chip? [Hint: $\frac{2}{3} = \frac{?}{9}$]



17. (2) Heba has two cakes that were the same size. She cut the first cake into 6 pieces and frosted 2 of the pieces with chocolate. She cut the second cake into 18 pieces. If she wanted to frost the same fraction of the second cake with chocolate, how many pieces should she frost ? How do you know? Draw a fraction model if necessary.



18. Sally's team won 10 of 15 games. Sylvia's team played 6 games and won the same fraction of their games as Sally's. How many games did Sylvia's team win? Explain your thinking.



the Om Ali Omar gave his friend?

19. Domar's Om Ali. Omar made a pan of Om Ali. his favorite dessert. The pan contains 12 equal servings. Omar shares 3 servings with his friend Heba. What is the simplest form of the fraction of



20. 🚨 Nadia's cake. Nadia owns a bakery. She made a cake and decorated it as shown.

There are 12 equal pieces total: 6 pieces have flowers, 4 are plain with no decorations, and the other 2 have something else.



Answer the questions based on Nadia's cake.

- 1. One-half of the customers want pieces with flowers. What fraction of the cake will they eat? How many pieces?
- 2. One-third of the customers want pieces with no decorations. What fraction of the cake will they eat? How many pieces?
- 3. What fraction of the cake is left?
- 4. If Nadia cuts all the pieces that are left into two, what fraction is now left?

Challenge

21. I am a fraction. Each of $\frac{6}{18}$ and $\frac{10}{30}$ is equivalent to me. Each of my numerator and my denominator is less than 5. Who am 1?

- 1. Which of the following shows the identity property of multiplication?
 - A. 0 × 4

c. 4×5

- D. $\frac{5}{7} + 0$
- 2. Which of the following shows the identity property of multiplication?

- D. $\frac{4}{7} + 0$

- $\frac{3}{5} = \frac{2}{5}$

- 7.3=

- 10. Which fraction is equivalent to $\frac{21}{49}$?
- $\frac{9}{5}$. Which fraction is equivalent to $\frac{4}{5}$?

- 11. Which of the following fractions is equivalent to 1?

- 12. What is the product

- 13. What is the missing denominator $?\frac{3}{4} = \frac{9}{}$
 - A. 3

B. 10

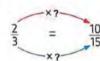
C. 12

- D. 36
- 14. What is the missing numerator? $\frac{25}{35} = \frac{7}{7}$
 - A. 3

B. 5

C. 10

- D. 15
- 15. What is the factor you multiply to find the equivalent fractions to $\frac{2}{3}$?



- A. 2
- B. 5

C. 8

D. 12

- 16. Which of the following is NOT true?

 - A. $\frac{5}{15} = \frac{1}{3}$ B. $\frac{1}{6} = \frac{3}{18}$ C. $\frac{7}{8} = \frac{8}{7}$

D. $\frac{3}{3} = \frac{4}{4}$

- 17. Which two fractions are equivalent to $\frac{24}{36}$?

C. $\frac{22}{34}$

- 18. Mina has 21 apples. Two thirds of the apples are green. How many apples are green?
 - A. 1

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B. $\frac{2}{3}$

C. 7

D. 14

Lesson 8



9-16 Multiplying by a Whole

Learn

How to multiply a fraction by a whole number?



Remember -

Multiplication is repeated addition.

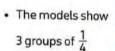
For example:

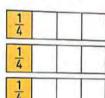
$$3 + 3 + 3 + 3 = 4 \times 3 = 12$$

Problem

Eman drinks $\frac{1}{4}$ bottle of milk every day.

How much milk does she drink in 3 days?







· You can use one model to show the answer.

1/4	1/4	1/4	
	-		_

(3/4)

· Also, you can use repeated addition:

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$$

or you can use multiplication:

$$3\times\frac{1}{4}=\frac{3}{4}$$

• 3 ×
$$\frac{1}{4}$$
 ≠ 3 $\frac{1}{4}$ but: 3 × $\frac{1}{4}$ = $\frac{3}{4}$



Explain that the properties of multiplication of whole numbers apply to fractions.

Remark

When you multiply a proper fraction and a whole number (except 0 and 1), the product is less than the whole number factor, but greater than the fraction factor.

For example:

$$3 \times \frac{1}{4} = \frac{3}{4}$$

$$\left[\frac{3}{4} < 3\right]$$
, but: $\frac{3}{4} > \frac{1}{4}$

Example 1

Draw a bar model and write an addition and multiplication sentence for each of the following fractions.

a. 3/5

b. $\frac{2}{7}$

Solution [V]

		Model	Addition sentence	Multiplication sentence
a.	3 5		$\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{3}{5} = 3 \times \frac{1}{5}$
b.	<u>2</u>		$\frac{2}{7} = \frac{1}{7} + \frac{1}{7}$	$\frac{2}{7} = 2 \times \frac{1}{7}$
c.	46		$\frac{4}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$	$\frac{4}{6} = 4 \times \frac{1}{6}$

Example 2

Multiply

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a.
$$5 \times \frac{1}{7} =$$

b.
$$4 \times \frac{1}{9} =$$

c.
$$\frac{1}{3} \times 3 = --$$

d.
$$10 \times \frac{1}{5} =$$

e.
$$\frac{3}{4} \times 2 =$$

a.
$$5 \times \frac{1}{7} =$$
b. $4 \times \frac{1}{9} =$
c. $\frac{1}{3} \times 3 =$
d. $10 \times \frac{1}{5} =$
e. $\frac{3}{4} \times 2 =$
f. $\frac{2}{9} \times 4 =$

Notes for parents:

solution 🖤

b.
$$4 \times \frac{1}{9} = \frac{4}{9}$$

$$\frac{1}{63} \times 3 = \frac{3}{3} = 1$$

d.
$$10 \times \frac{1}{5} = \frac{10}{5} = 2$$

$$= \frac{3}{4} \times 2 = \left[\frac{1}{4} + \frac{1}{4} + \frac{1}{4}\right] \times 2 \qquad \text{[Hint : } \frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}\text{]}$$
$$= \left[\frac{1}{4} + \frac{1}{4} + \frac{1}{4}\right] + \left[\frac{1}{4} + \frac{1}{4} + \frac{1}{4}\right] = \frac{6}{4}$$

Another solution:

$$\frac{3}{4} \times 2 = \frac{3}{4} + \frac{3}{4} = \frac{6}{4}$$

$$\left[\frac{2}{9} \times 4 = \left[\frac{1}{9} + \frac{1}{9}\right] + \left[\frac{1}{9} + \frac{1}{9}\right] + \left[\frac{1}{9} + \frac{1}{9}\right] + \left[\frac{1}{9} + \frac{1}{9}\right] = \frac{8}{9}$$

Another solution :

$$\frac{2}{9} \times 4 = \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \frac{8}{9}$$

dieck your understanding

1. Draw a bar model and write an addition and multiplication sentence for $\frac{3}{8}$.

2. Multiply.

a.
$$\frac{1}{4} \times 5 =$$
 b. $3 \times \frac{1}{9} =$ c. $\frac{2}{5} \times 2 =$

c.
$$\frac{2}{5} \times 2 = ----$$

Remind your child that when we multiply a fraction and a whole number (except 0 and 1), the product is less
than the whole number factor, but greater the numbers because the product is always greater than either factor.

Exercise 15

9-16 Multiplying by a Whole

UNDERSTAN		U	N	8	Ę	R	S	Ī	i	N	
-----------	--	---	---	---	---	---	---	---	---	---	--

PROBLEM SOLVING

From the school book

REMEMBER

1. Draw a bar model and write an addition and multiplication sentence for each of

O APPLY

the following fractions.

	773	2
a.	las	5

2			
	-		-
	- 1	1	

Addition sentence:

Multiplication sentence:

b. $\frac{3}{4}$

_			_
	-	100	
			 11

Addition sentence: -

Multiplication sentence: -

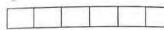
c. 1 5

8		_	-	T
				ı
				ı

Addition sentence: -

Multiplication sentence: -

d. $\frac{4}{6}$



Addition sentence:

Multiplication sentence:

2. Write the fraction for each bar model and write an addition and multiplication sentence for each fraction.







Fraction:

Addition sentence: -

Multiplication sentence:

Fraction:

Addition sentence: -

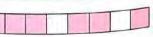
Multiplication sentence: -



Fraction:

Addition sentence:

Multiplication sentence:



Fraction:

Addition sentence:

Multiplication sentence:

3. praw a bar model for each of the following sentences.

a. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

3. praw a ban
a.
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$$

b.
$$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

d.
$$\frac{1}{3} \times 5$$

4. Complete each of the following.

- c. $\frac{1}{7} \times 2 =$ d. $8 \times \frac{1}{9} =$ g. $\frac{1}{3} \times 3 =$ b. $\frac{1}{7} \times 5 =$ e. $\frac{1}{4} \times 3 =$ h. $\frac{3}{7} \times 2 =$ i. $3 \times \frac{2}{7} =$

c.
$$\frac{1}{9} \times 4 =$$

- 5. Put (1) to the correct statement and (X) to the incorrect one.

a.
$$3 \times \frac{1}{7} = \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$
 [] b. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 3 \times \frac{1}{5}$ [

- c. $5 \times \frac{1}{4} = 5\frac{1}{4}$ [] d. $3 \times \frac{1}{2} = 1\frac{1}{2}$ [] e. $2 \times \frac{1}{4} = \frac{1}{4} \times 2$ [] f. $\frac{2}{9} \times 4 = \frac{6}{9}$ []

- g. $\frac{6}{7} = \frac{2}{7} + \frac{2}{7} + \frac{2}{7}$ [] h. $\frac{1}{5} \times 5 = 1$

6. Match.

- $5 \times \frac{1}{2}$
- C. $5 \times \frac{1}{2}$
- d $2 \times \frac{1}{2}$
- 6. 5 × 3

- 2.
- 2 x =
- 3 × =
- 5.

7. Sally drinks $\frac{1}{5}$ of a carton of milk each day.

How much milk does she drink in 4 days?

Express your answer as a sum of unit fractions, and as an equivalent multiplication sentence.

Draw a bar model if necessary.



8. If it takes $\frac{2}{6}$ of a bag of flour for a cookie recipe,

how much flour will it take to double the recipe?



9. At a birthday party, there are 7 children.

If each child eats $\frac{2}{9}$ of a pizza,

how many pizzas will be eaten?



Challenge

10. What do you notice about the factors and product when you multiply a proper fraction by

How is this different from multiplying a whole number by a whole number ?



choose the correct answer.

1. Which sentence represents the following bar model?



A.
$$6 \times 3$$

C. $3 + \frac{1}{6}$

D. 3 ×
$$\frac{1}{6}$$

$$3 \times \frac{1}{4}$$



A. $6 \times \frac{1}{2}$ B. $2 \times \frac{1}{6}$

C. 6 × 2

D. $\frac{1}{2}$

A. $2 \times \frac{1}{3}$ B. $\frac{1}{2} + \frac{1}{2}$

C. 3+3+3 D. $1\frac{1}{2}$

5. $\frac{1}{10} \times 10 = -$

A. $\frac{1}{100}$

D. 10

6. $\frac{2}{7} \times 3 = -$

 $\frac{7}{6} \cdot \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = -$

8. $7 \times \frac{1}{10} = -----$

A. $7\frac{1}{10}$

B. 70

c. $\frac{2}{10} + \frac{5}{10}$ D. $\frac{7}{70}$

 $\frac{9.5 \times \frac{1}{6}}{} = -$

10. $3 \times \frac{1}{4} = \frac{1}{3}$ A. $4 \times \frac{1}{3}$ B. $\frac{1}{4} + \frac{2}{4}$ C. $3\frac{1}{4}$ D. 1



9-17 Real-World Fraction Connection

Learn

• In this lesson, you will solve story problems involving fractions.

Problem:

If $3\frac{3}{4}$ mL of cough syrup is used from a $9\frac{1}{4}$ mL bottle, how much is left?



Understanding

· What do you want to find out? Circle the questions.



· What facts do you need? Underline them.



• The left = $9\frac{1}{4} - 3\frac{3}{4} = 8\frac{5}{4} - 3\frac{3}{4} = \left[5\frac{2}{4} = 5\frac{1}{2} \text{ mL}\right]$

Find the total width of 3 boards that $1\frac{3}{8}$ m wide, $\frac{7}{8}$ m wide, and $1\frac{1}{8}$ m wide.



The total = $1\frac{3}{8} + \frac{7}{8} + 1\frac{1}{8} = 2\frac{11}{8} = 3\frac{3}{8}$ m.



dieck your understanding

Calculate the perimeter of a square of side length $\frac{1}{5}$ m.

Notes for parents:

Help your child read each story problem carefully and plan to solve.

Exercise 16

9-17 Real-World Fraction Connection

REMEMBER

UNDERSTAND

O APPLY

PROBLEM SOLVING

From the school book

1. $3\frac{1}{4}$ meters are cut off a board that is $12\frac{3}{4}$ meters long.

How long is the remaining part of the board?



2.

Heba is making pancake batter. The recipe calls for $\frac{5}{8}$ of a jug of milk, and she only has $\frac{2}{8}$ of a jug of milk. How much more milk does Heba need to make the pancake batter?



3.

Kareem runs to train for the big race. On Monday he runs $\frac{4}{2}$ kilometer, on Wednesday he runs $\frac{1}{2}$ kilometer, and on Friday he runs $\frac{6}{2}$ kilometer. How many kilometers did Kareem run in all?



4. Samira and her family are celebrating her birthday With cake. They cut the cake into 8 equal slices. If Samira, her mom, her dad, and her brother each have 1 slice of the cake,

what fraction of the cake is left?



5. A runner jogs $7\frac{1}{5}$ km east, $5\frac{1}{5}$ km south, and $8\frac{2}{5}$ km west. How far has he jogged ?



6. \square Over the course of a week, Adam drank 1 $\frac{3}{4}$ liters of juice and Omar drank 1 $\frac{7}{8}$ liters of juice. Who drank more ?



7. Tahani baked a bunch of cakes for dessert. She ate on Monday $\frac{2}{8}$ of them, and on Tuesday $\frac{5}{8}$ of them. What is the fraction that represents the number of cakes that Tahani ate?



8. Ahmed ran $1\frac{2}{9}$ km, and Yousef ran $\frac{8}{9}$ km. What is the difference between the two distances?



9. Bassem painted $\frac{5}{16}$ of a wall with red. What is the remainder of the wall to be painted?



10. Yassin had a homework consisting of nine problems. He finished solving $\frac{1}{9}$ of it before returning home. When he came home, he completed $\frac{5}{9}$ of it. What fraction represents the remainder of the homework?



11. Ahmed used $\frac{5}{8}$ can of blue paint and $\frac{2}{8}$ can of white paint. How much more blue paint than white paint did he use ?



12. Enas made a pattern by using shapes. Of the shapes, $\frac{9}{12}$ were squares and $\frac{3}{12}$ were circles. What fraction tells how many more squares than circles she used?



13. Ajar had $\frac{3}{4}$ cup of peanuts inside. Mina and Bassem each ate $\frac{1}{4}$ cup of peanuts. How much of the peanuts are left?



Challenge

14. Create Your Own Problem.

Write and solve your own fraction addition or subtraction story problem. Use one of the expressions provided or create your own.

Sample expressions: $\cdot 2\frac{2}{7} + 1\frac{5}{7}$

 $-3\frac{7}{10}-1\frac{8}{10}$

Multiple Choice Questions

Choose the correct answer.

1. A log is $\frac{8}{10}$ meter long. Sameh cuts off a piece that is $\frac{3}{10}$ meter long.

What is the length of the log now?

c.
$$\frac{11}{10}$$

D,
$$\frac{1}{10}$$

2. Sara has $\frac{8}{8}$ meter of fabric. She uses $\frac{6}{8}$ meter to make a pillow.

How much of the meter of fabric is left?

A.
$$\frac{1}{4}$$

B.
$$\frac{3}{8}$$

c.
$$\frac{1}{2}$$

D.
$$\frac{3}{4}$$

3. A submarine sandwich was cut into 12 equal pieces. Peter ate $\frac{3}{12}$, Taj ate $\frac{2}{12}$, and Marissa ate $\frac{5}{12}$. What fraction of the sandwich did they eat altogether?

c.
$$\frac{10}{12}$$

4. Mariam ordered a pizza that was $\frac{1}{4}$ sausage, $\frac{1}{4}$ cheese, $\frac{1}{4}$ pepperoni, and the rest was mushroom. What fraction of the pizza represented the sum of sausage and mushroom?

A.
$$\frac{1}{8}$$

A.
$$\frac{1}{8}$$
 B. $\frac{1}{4}$ C. $\frac{2}{4}$

c.
$$\frac{2}{4}$$

D.
$$\frac{3}{4}$$

5. Sandy makes a cake. The recipe required $\frac{7}{9}$ liter of milk, but Sandy only has $\frac{5}{9}$ liter of milk. How much milk does Sandy need to prepare a cake?

A.
$$\frac{2}{9}$$

A.
$$\frac{2}{9}$$
 B. $\frac{12}{9}$ C. $\frac{7}{9}$

6. Some children ate $\frac{4}{12}$ of a veggie pizza, $\frac{9}{12}$ of a pepperoni pizza, and $\frac{11}{12}$ of a cheese pizza. All 3 pizzas were the same size. What fraction tells how much more cheese pizza than veggie pizza the children ate?

A.
$$\frac{15}{12}$$

B.
$$\frac{2}{12}$$

B.
$$\frac{2}{12}$$
 C. $\frac{7}{12}$

7. In a relay race, Hany ran $1\frac{1}{5}$ km, Amgad ran $1\frac{2}{5}$ km, and Wael ran $1\frac{3}{5}$ km. How far did Hany and Wael run altogether?

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B.
$$2\frac{3}{5}$$

C.
$$2\frac{4}{5}$$

Unit Nine Assessments



Model

1, Choose the correct answer.

$$\frac{3}{a \cdot \frac{3}{8}} = \frac{3}{1 \cdot 1 + \frac{1}{4}}$$

A.
$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$
 B. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ C. $\frac{2}{8} + 1$

B.
$$\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

C.
$$\frac{2}{8} + 1$$

D.
$$\frac{1}{8} + 2$$

b.
$$\frac{14}{3} = \frac{1}{3}$$
 as a mixed number.
A. $4\frac{1}{3}$ B. $3\frac{2}{4}$

A.
$$4\frac{1}{3}$$

B.
$$3\frac{2}{4}$$

C.
$$4\frac{2}{3}$$

D.
$$2\frac{2}{3}$$

B.
$$\frac{5}{8}$$

C.
$$1\frac{1}{8}$$

D.
$$\frac{1}{9}$$

2. Complete.

a.
$$5\frac{1}{6} + 1\frac{4}{6} = ---$$

a.
$$5\frac{1}{6} + 1\frac{4}{6} =$$
 b. $2 + \frac{1}{7} + 3 + \frac{3}{7} =$ c. $2 - \frac{2}{9} =$

c.
$$2 - \frac{2}{9} =$$

3. Match.

a.
$$\left[\frac{3}{4} = ----\right]$$

$$1-\frac{3}{7}-\frac{2}{7}=$$

d.
$$1\frac{5}{7} = ----$$

1.
$$\frac{2}{7}$$

3.
$$\left[\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}\right]$$

4. Put (/) to the correct statement and (X) to the incorrect one.

a.
$$\frac{5}{7} > \frac{2}{7}$$

b.
$$\frac{7}{8} > \frac{1}{2}$$

$$\frac{c.3+4+\frac{1}{3}=\frac{8}{3}}{}$$

Sara is making pancake batter. The recipe calls for
$$\frac{7}{10}$$
 of a jug of milk, and she only has $\frac{2}{10}$ of a jug of milk. How much more milk does Sara need to make the pancake batter?

2 Model

1. Choose the correct answer. a. Which of the following is the least?

c. $\frac{2}{9}$

D. 1

b. $2\frac{3}{7} =$ as an improper fraction.

A. $\frac{17}{3}$ B. $\frac{17}{7}$

c. $\frac{14}{7}$

D. $\frac{11}{7}$

c. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ A. $\frac{4}{5}$ B. $\frac{111}{5}$

c. $3 \times \frac{1}{5}$

D. $\frac{3}{15}$

2. Complete.

a.
$$7\frac{3}{9}$$
 = 4

b.
$$\frac{5}{8} = \frac{1}{40}$$

a.
$$7\frac{3}{9}$$
 — = $4\frac{1}{9}$ b. $\frac{5}{8} = \frac{}{40}$ c. — $-2\frac{1}{5} = 3\frac{3}{5}$

3. Match.

a.
$$4 + \frac{2}{8} + 3 + \frac{5}{8} =$$

1.
$$\frac{3}{8} + \frac{2}{8}$$

b.
$$\left| \frac{1}{2} > \frac{1}{2} \right|$$

c.
$$5 \times \frac{1}{8} =$$

d.
$$3 - \frac{1}{8} =$$

Put (✓) to the correct statement and (X) to the incorrect one.

a.
$$\frac{2}{5} + \frac{1}{5} < \frac{2}{7} + \frac{1}{7}$$

b.
$$\frac{4}{5} = \frac{40}{50}$$

c.
$$\frac{3}{5}$$
 is a unit fraction.

5. Use the benchmark fractions 0, $\frac{1}{2}$, 1 to order the following fractions from least to greatest

$$\frac{3}{8}$$
, $\frac{7}{9}$, $\frac{5}{10}$

Theme 3

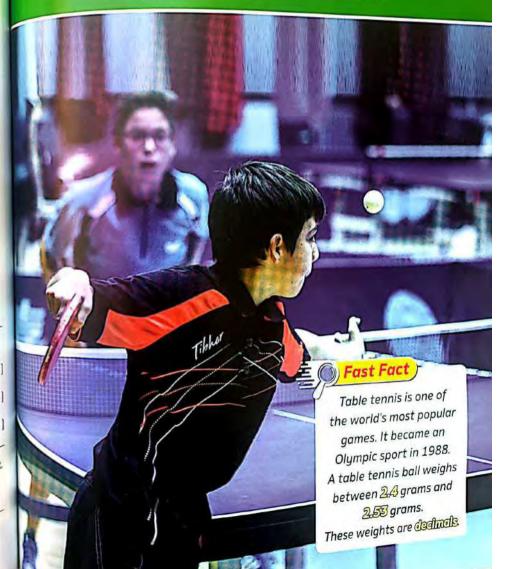
Fractions, Decimals, and Porportional Relationships

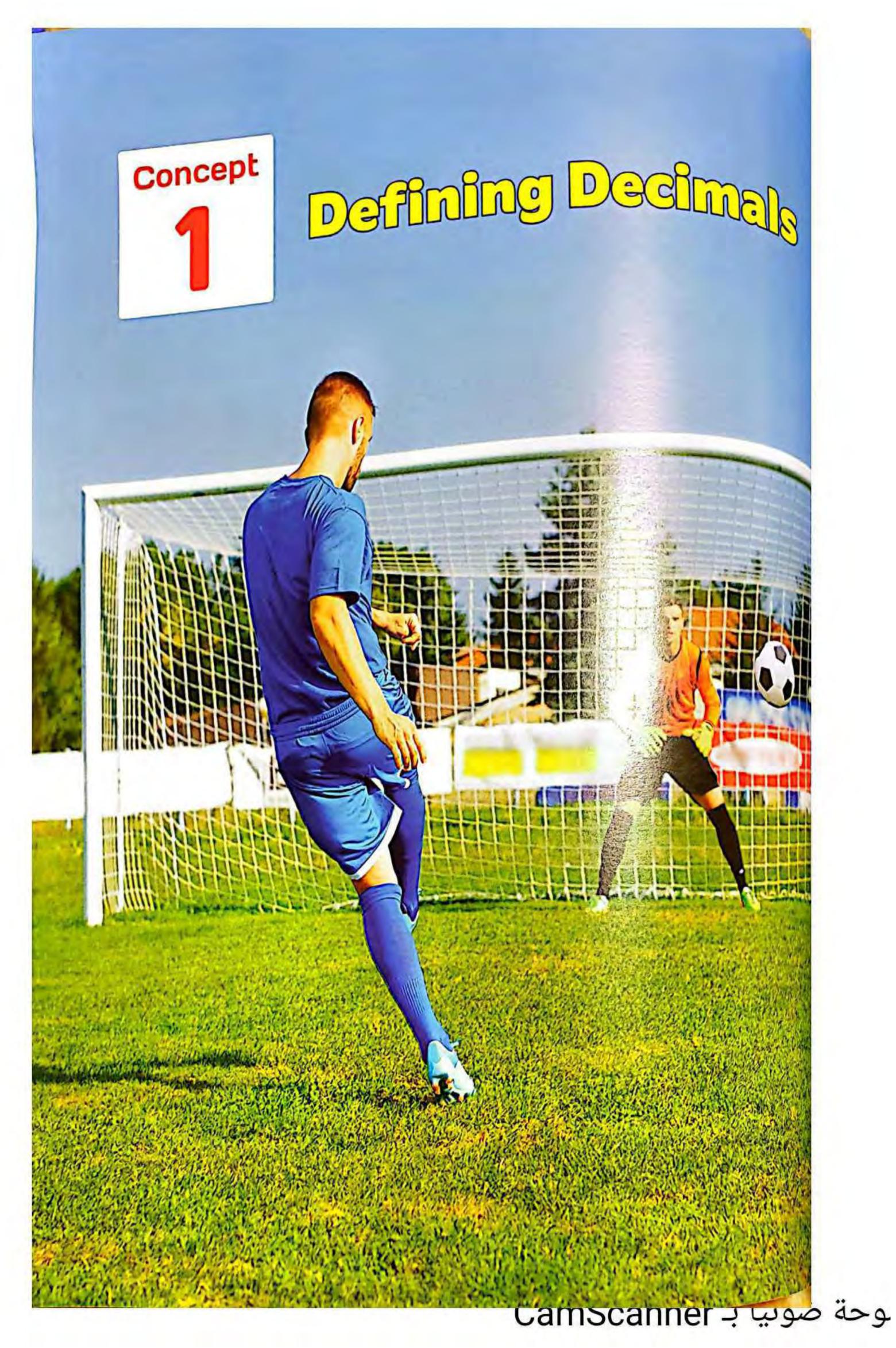
Decimals

» Concept 1: Defining Decimals

» Concept 2: Decimals and Fractions

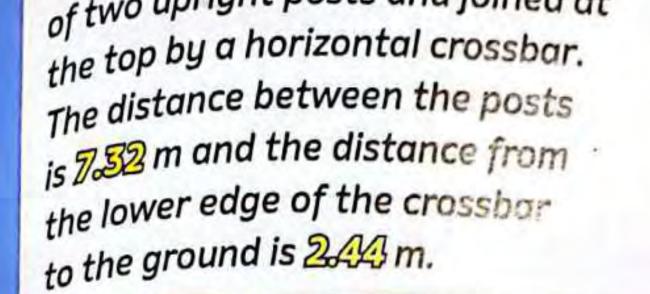
» Concept 3: Working with Decimals





Fast Fact

Each goal in a football game consists of two upright posts and joined at the top by a horizontal crossbar. The distance between the posts is 7.32 m and the distance from the lower edge of the crossbor



Concept Overview

In concept 1:

Defining Decimals, students explore decimals for the first time. They define a decimal fraction and use models to explore decimals to the Hundredths place. Next, they review the place value system for whole numbers and apply that understanding to digits to the right of the decimal point. Students read, write, and create decimals in standard, word, and excanded form.

No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 1	10-1 Let's Explore Decimals	Decimal number - Decimal fraction - Decimal point - Fraction - Tenths	Students will define decimal fractions. Students will create visual models of Tenths.
	10-2 The Powerful 10	Hundredths - Kilogram	Students will create visual models of Hundredths.
Lesson 2	10-3 The Value of Place	Hundredths - Place value - Tenths	Students will name the place values of decimals to the Hundredths place. Students will identify the value of a digit to the Hundredths place
	10-4 Decimals in Multiple Forms	Expanded form - Standard form - Word form - Unit form	Students will write decimals to the Hundredths place in standard, word, unit, and expanded form.



10-1 Let's Explore Decimals

10-2 The Powerful 10



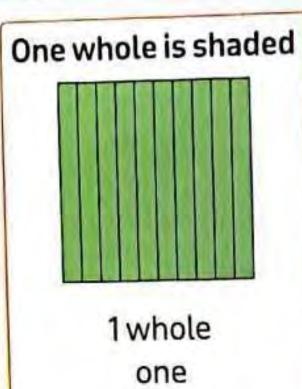
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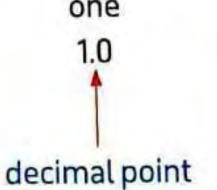
Exploring Tenths Learn

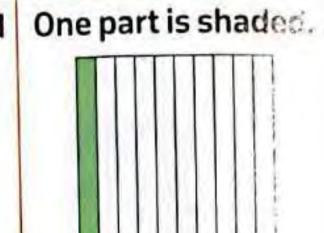
- One way to show parts of a whole is to use fractions. Another way is to
- A decimal is a number with one or more digits to the right of the decimal point.

Look at the models below. Each models has 10 equals parts









10 of a whole

Read: One tenting Write: 0.1

decimal point



10 of a whole

ead: Seven tenths /rite:

decimal point



Ahmed plays in a football school team.

He trains to kick penalties.

He scored 8 goals of 10 tries.



Model	Fraction	Decimal
	Write: $\frac{8}{10}$ Read: Eight tenths	Write: 0.8 Read: Eight tenths

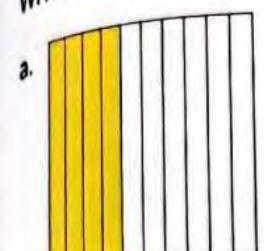
Ahmed scored $\frac{8}{10}$ or 0.8 of his tries.

Notes for parents:

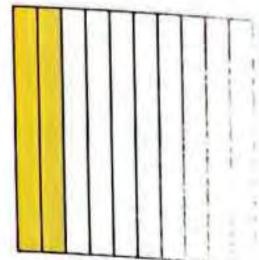
Explain that the fraction ⁷/₁₀ and the decimal 0.7 name the same amount.

Example 1

Write the fraction and decimal for the shaded new











a.
$$\frac{4}{10}$$
 , 0.4

Solution
$$\bigcirc$$

a. $\frac{4}{10}$, 0.4

b. $\frac{2}{10}$, 0.2

c. $\frac{7}{10}$, 0.7

d. $\frac{5}{10}$, 0.5

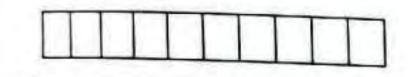
c.
$$\frac{7}{10}$$
 , 0.7

d.
$$\frac{5}{10}$$
 , 0.5

Example 2

Color to represent each of the following decimals.

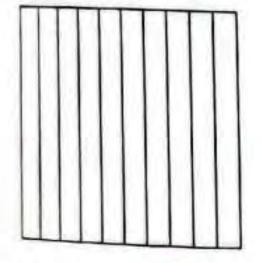
a. 0.5

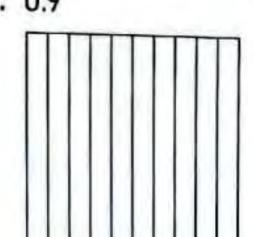


b. 0.3



c. 0.6

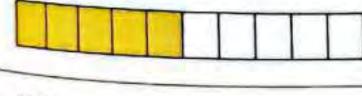




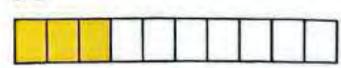
Solution [V]



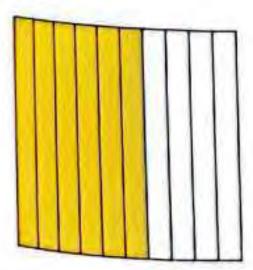
a. 0.5



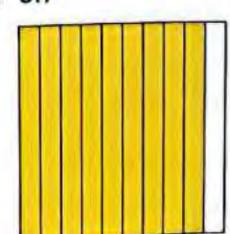
b. 0.3



c. 0.6



d. 0.9

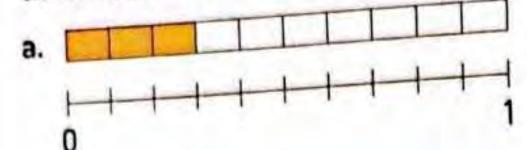


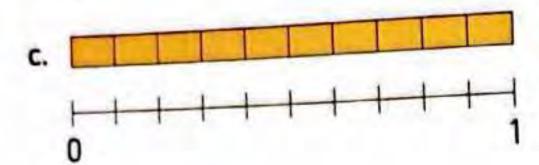
^{*}Let your child understand that each square is divided into 10 equal rectangles. This is why the denominator of the fraction in 10.

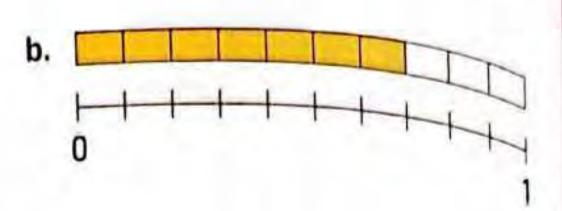
Example 3

Write the fraction and decimal which represent the shaded parts and represent it on

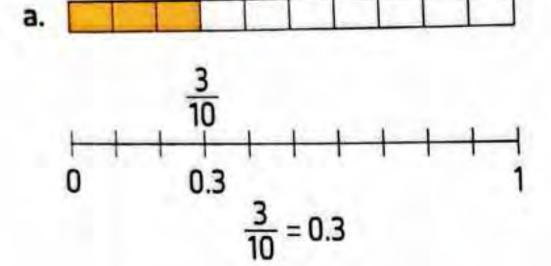
the number line.

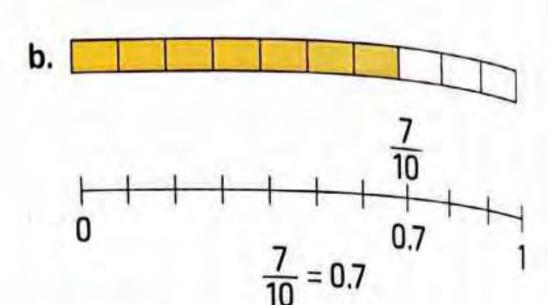


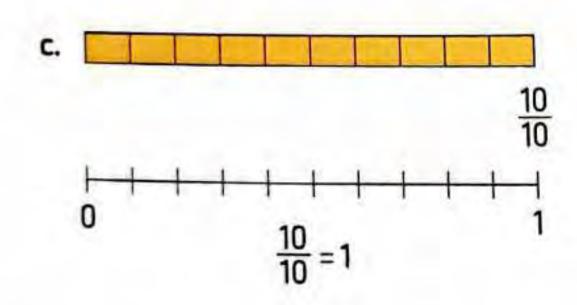




Solution 🕎







Remarks

- 1 meter (m) = 10 decimeter (dm) so, 1 dm = $\frac{1}{10}$ m = 0.1 m
- 1 decimeter (dm) = 10 centimeter (cm) so, 1 cm = $\frac{1}{10}$ dm = 0.1 dm
- 1 centimeter (cm) = 10 m meter (mm) so, 1 mm = $\frac{1}{10}$ cm = 0.1 cm

Check your understanding

- 1. Write each fraction as a decimal.

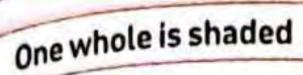
- 2. Write each decimal as a fraction.
 - a. 0.7 b. 0.1 —
- c. 0.5 -

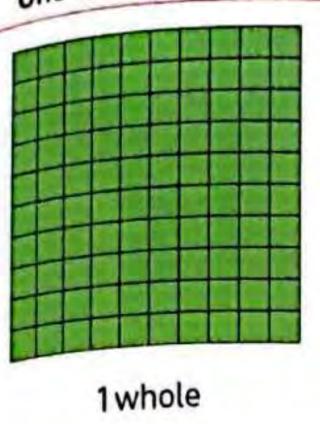
Notes for parents:

· Select one exercise from this page and ask your student how he / she solved it.

Learn Exploring Hundredth

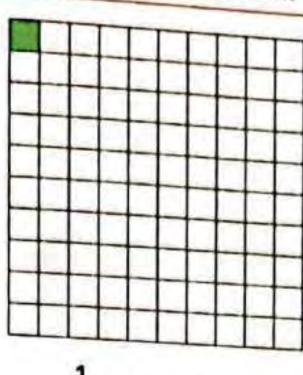
Look at the models below. Each model has 100 equal parts.





one

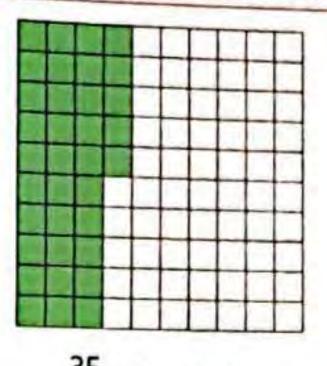
One part is shaded.



100 of a whole

Write: 0.01

Thirty-five parts are shaded.

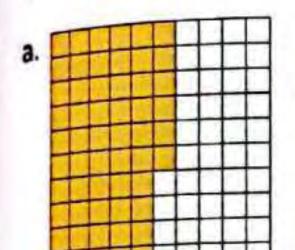


 $\frac{35}{100}$ of a whole

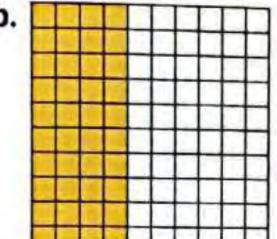
Write: 0.35

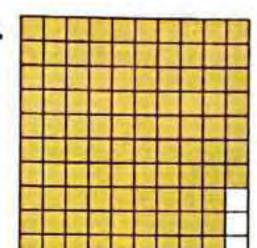
Example 4

Write the decimal to name each shaded part.

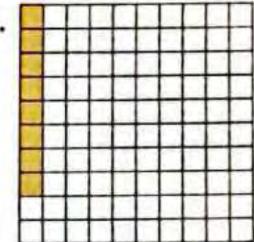


b.





d.



solution [V]



a. 0.56

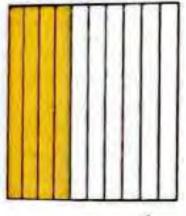
b. 0.40

c. 0.97

d. 0.08

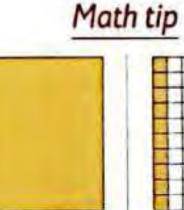
Remark

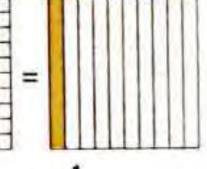
You can name the same amount in different ways.



0.4 = 0.40



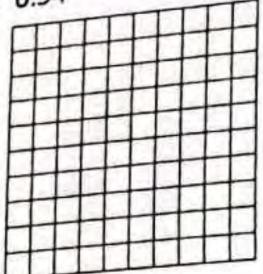




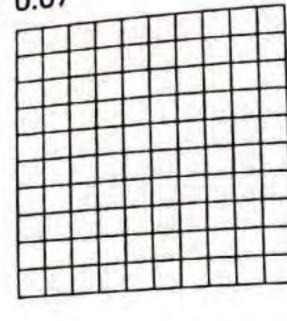
[·] Make sure your student understand that there are 100 squares on each grid. This is why the denaminator of the fraction is 100.

Color each of the following to represent the following decimals. Example 5

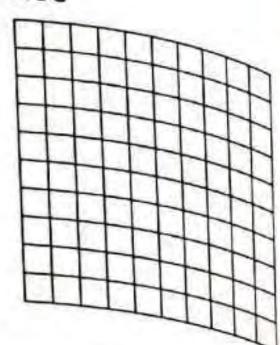
a. 0.34



b. 0.07

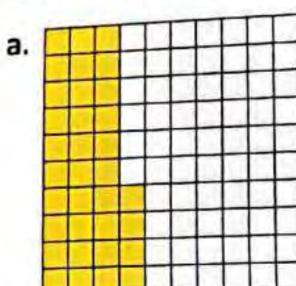


c. 0.80

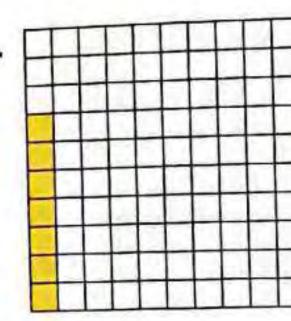


Solution [V]

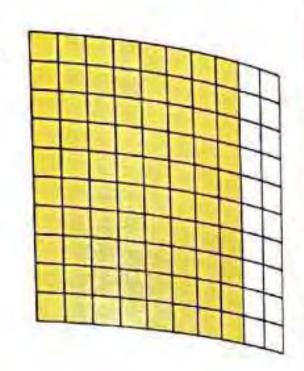




b.



C.



Remark

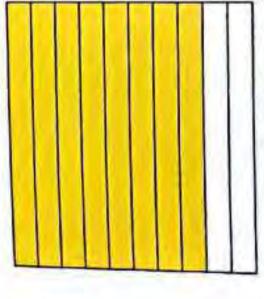
1 meter = 100 cm

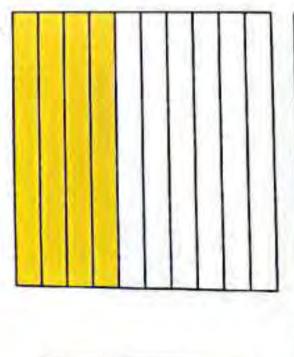
then, 1 cm =
$$\frac{1}{100}$$
 m = 0.01 m

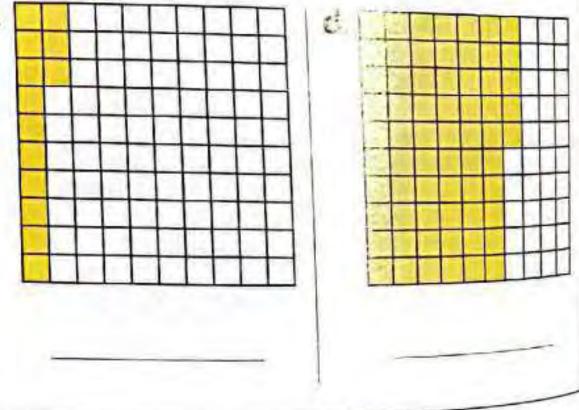
check your understanding

Write the fraction and the decimal to name each shaded part.

a.







Notes for parents:

Select one exercise from this page and ask your child how he / she solved it.

Learn

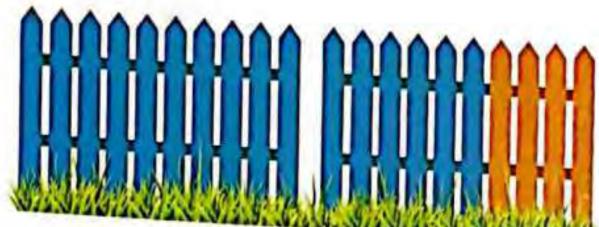
Decimals greater than one

problem

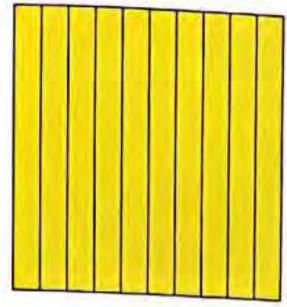
Mr. Bassem is painting the fence around

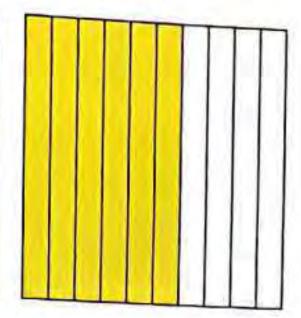
his yard. There are 10 sections. Each section

has 10 boards. Mr. Bassem painted 16 boards so far.



What decimal shows how many sections he has painted?





Write:

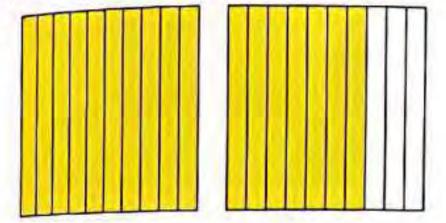
1.6

Read: One and six tenths.

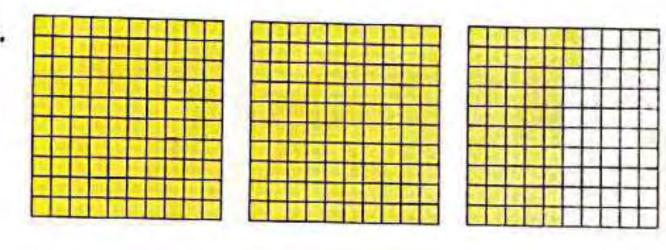
50, Mr. Bassem has painted 1.6 section of fence.

Example 6

Write the decimal for the shaded part.



b.



Solution [V]



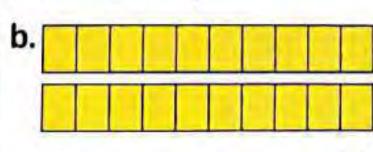
a. 1.7

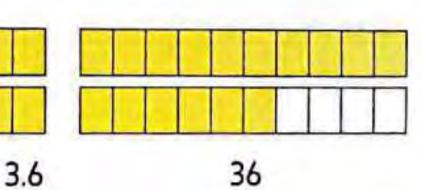
b. 2.52

check your understanding

Circle the decimal that represent the shaded part.

a. 13.0 0.7 1.3





[·] Challenge your child how he / she can write 2.7 as a fraction.

Exercise 17

10-1 Let's Explore Decimals

1. Write the decimal to name each shaded part.

a.

b.

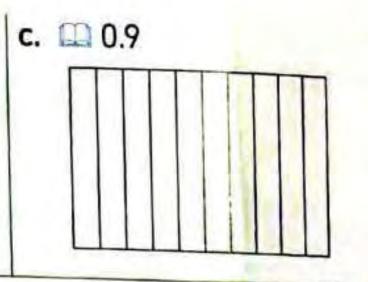
c.

d.

e.

f.

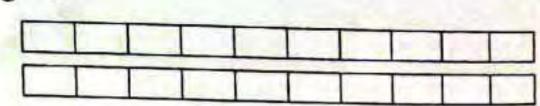
- 2. Shade in the model to represent the decimal.
 - a. (11) 0.2



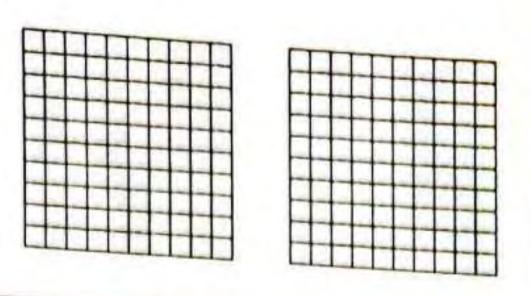
- d. 🕮 0.7
- e. 🕮 0.5

f. 2.4

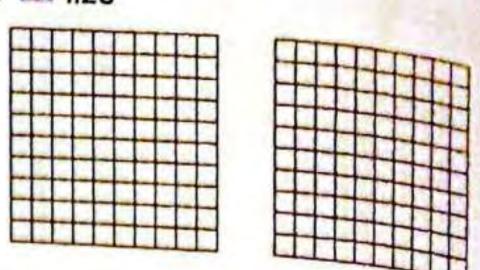
g. 1.7



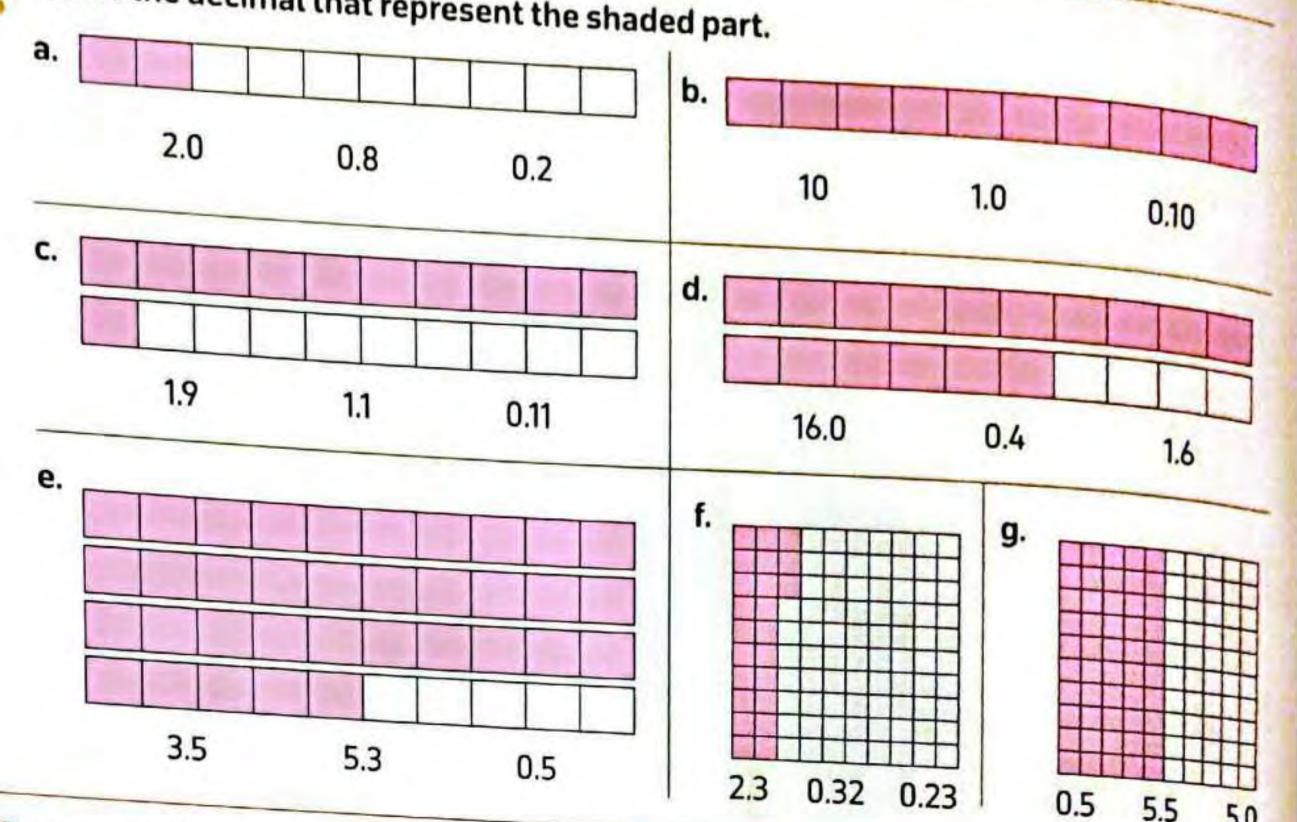
e. 1.3



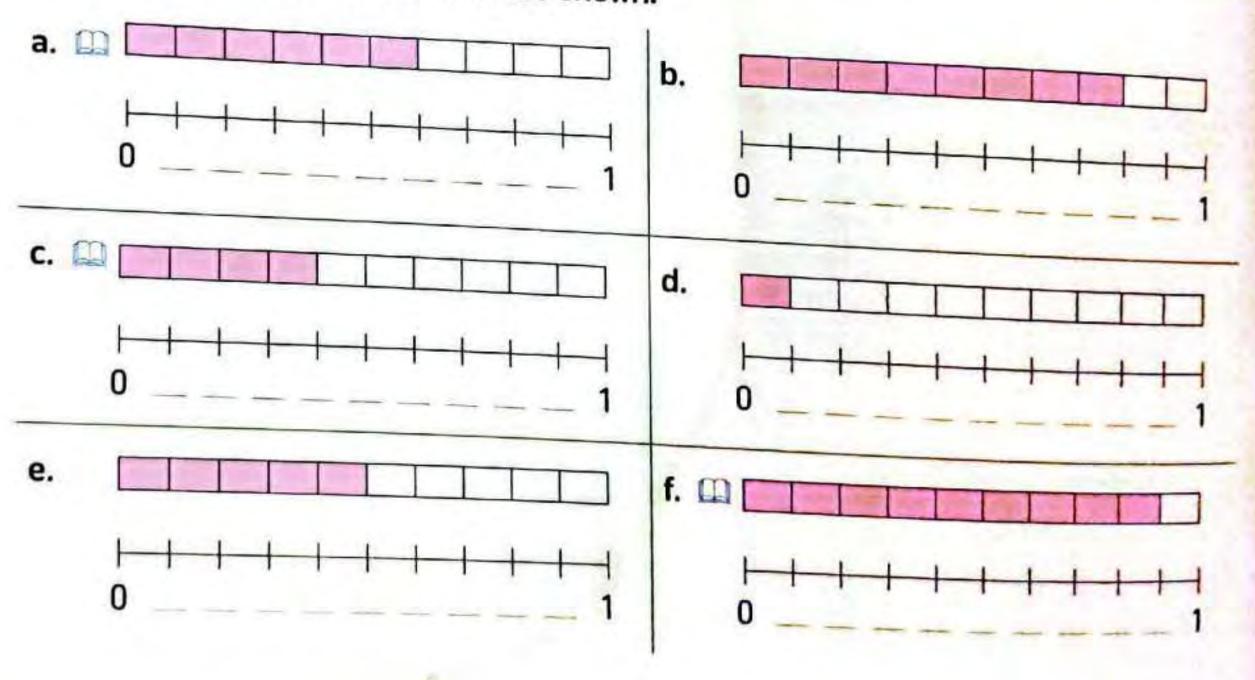
f. 1.28



5. Circle the decimal that represent the shaded part.



6. Record what fraction and decimal are shown.



7. Write each of the following as a decimal.

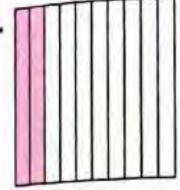
- a.
 - e. 100

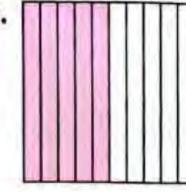
8. Write each of the following as a fraction.

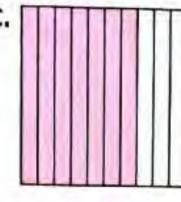
- a. 0.2
- c. 0.8
- d. 0.1

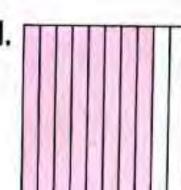
- e. 0.23
- f. 0.69
- g. 0.08
- h. 0.02

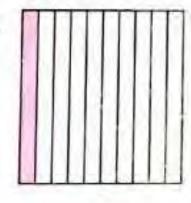
9. Join each decimal to its representing shape.











0.8

0.1

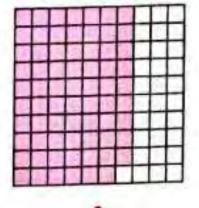
0.2

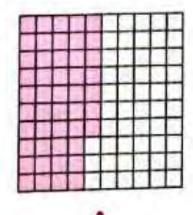
0.5

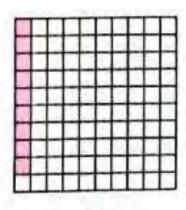
10. Join each decimal to its representing shape.

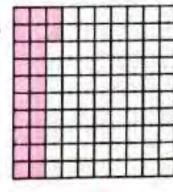
a.











0.22

0.09

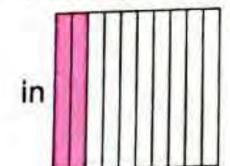
0.99

0.47

0.69

11. Put (1) to the correct statement and (X) to the incorrect statement.

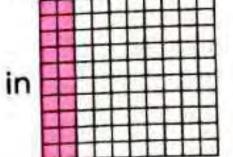
a. 0.3 is represented with the shaded part



c.
$$0.10 = 0.1$$

g. 1dm = 0.1m

b. 0.2 is represented with the shaded part



$$d. 0.08 = 0.8$$

f.
$$\frac{3}{100} = 0.3$$

h.
$$1 cm = 0.01 dm$$

12. Write the result of each of the following as a decimal.

a.
$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{1}{10}$$

c.
$$\frac{5}{10} + \frac{1}{10} + \frac{3}{10} = -$$

e.
$$\frac{15}{10} - \frac{11}{10} = -$$

b.
$$\frac{3}{10} + \frac{4}{10} = -$$

d.
$$\frac{8}{10} - \frac{3}{10} = -$$

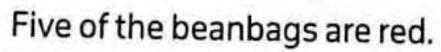
f.
$$\frac{23}{100} + \frac{41}{100} = -$$

$$h. \ \frac{1}{100} + \frac{1}{100} + \frac{1}{100} =$$

j.
$$\frac{99}{100} - \frac{50}{100} = -$$

13. Write about math. How is 0.1 (one-tenth) similar to 1 divided by 10?

14. There are 10 beanbags.



What part of the group of beanbags are red?

(Write fraction and decimal)

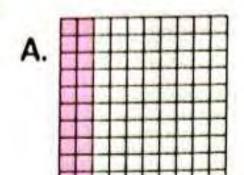


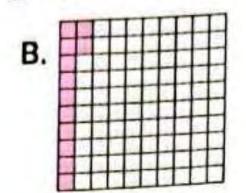
	Hossam had a 1-meter piece of fabric. Of this piece, 0.2 meter had meter was plain blue, and the rest had stars. Color in the strip of Hos the description.	flowers on it, 0.6 sam's fabric based on
	What decimal of Hossam's strip had stars?	
17.	Bassem had a quilt that his mother bought for him. 0.35 of it was colored blue. 0.4 of it was red. The rest was yellow. Color in the quilt to match the decimals described.	
	What decimal of Bassem's quilt was yellow?————	
18.	Aisha was coloring in a Hundredths grid. She colored in 30 squares or 0.30. Adel walked by and said, "Oh, I see you colored in 3 Tenths".	
	Is Adel correct ? How do you know ?	
	Color in the grid to check your thinking. Aish	a Adel
19.	There are 100 centimeters in 1 meter. Use your ruler, then measure the centimeters. Then write the length as a fraction and as a decimal of a	
	Challenge	
20.	Is 0.70 greater, less than, or equal to 0.7? Explain.	

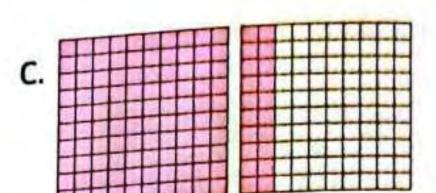
Multiple Choice Questions

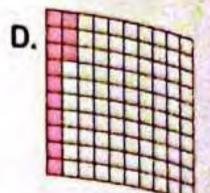
Choose the correct answer.

Which of the following represents 0.12?

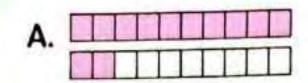


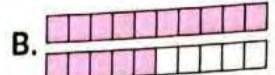


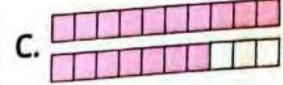




Which of the following represents 1.2?







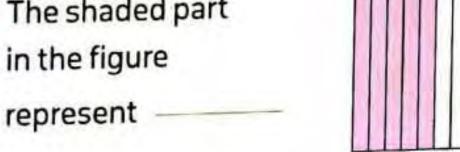


- - A. 1.2

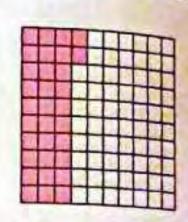
C. 0.2

- B. 2.1
- D. 0.22
- 4. 0.7 =

The shaded part in the figure



- **B.** 0.05
- **D.** 0.50
- 6. The shaded part in the figure represent



- A. 0.30
- C. 3.2
- **D.** 32

B. 0.32

7. Which shows the fraction for 0.9?



c. $\frac{9}{10}$

A. 5

C. 50

- D. $\frac{10}{9}$
- 8. Which of the following is equal to 1? A. 0.1
 - B. 1.1

D. $\frac{10}{100}$

- 9. Which decimal shows eight hundredths?
 - A. 8.00
- **B.** 0.08
- C. 0.80

D. 800



10-3 The Value of Place

10-4 Decimals in Multiple Forms

Learn

Decimal place value

A table tennis ball weighs between 2.4 grams and 2.53 grams.

You can use a place-value chart to show decimals.

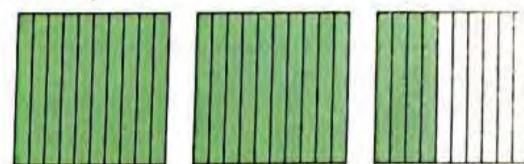
Ones	Tenths	Hundredths
2	4	
2	5	3



In 2.4, the place to the right of the decimal point shows how many tenths.

Read 2.4 as two and four tenths.

- The value of 2 is 2
- The value of 4 is $0.4 \left[= \frac{4}{10} \right]$

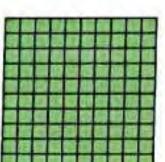


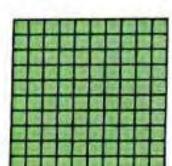
In 2.53, the places to the right of the decimal point show how many hundredths. Read 2.53 as two

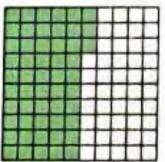
- The value of 2 is 2
- The value of 5 is $0.5 \left(= \frac{5}{10} \right)$

and fifty-three hundredths.

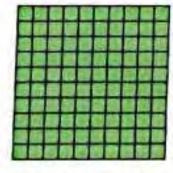
• The value of 3 is $0.03 \left(= \frac{3}{100} \right)$



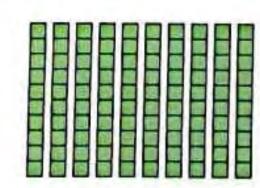




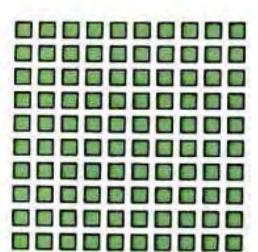
Remarks



One whole



10 tenths



100 hundredths

One tenth



10 hundredths

Talk about it

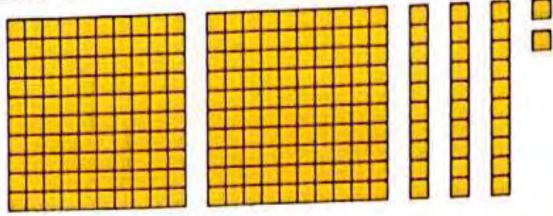
What is the value of each 5 in 2.55?

Notes for parents:

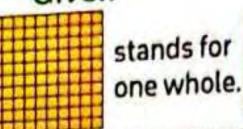
- When discussing the lesson, focus on the importance of the place-value relationship between tenths and hundredths. You may wish to ask questions such as the following.
- · How many hundredths make 1 tenth ? 10
- How many tenths are there on a hundredths grid? 10

Example 1

Write the decimal to describe each model.

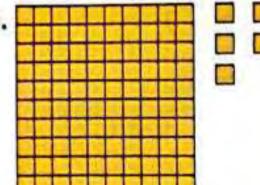


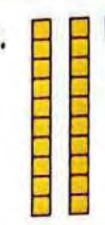
Given

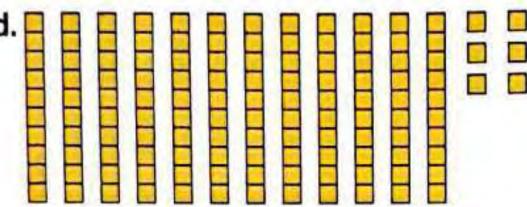


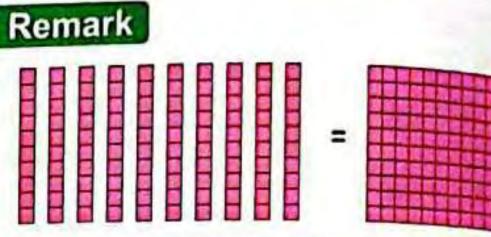
stands for one tenth.

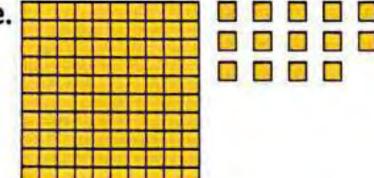
stands for one hundredth.



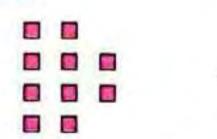








Remark



Solution [7]

a. 2.32

b. 1.05

c. 0.21

d. 1.26

e. 1.14

Notes for parents:

Make sure that your child understand how he/she review 10 tenths as 1 whole.

Example 2

- Write a number formed from 6 Ones, 4 Tenths, 8 Hundredths.
- b. Write a number formed from two and seven hundredths.
- c. Write a number formed from fifteen and thirty-one hundredths.

solution [

a. 6.48

b. 2.07

c. 15.31

The place value of decimals

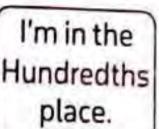
I'm in the Hundreds place.

I'm in the Tens place.



I'm the decimal point.

I'm in the Tenths place.





My value is 200



My value is 40



My value is 9



My value



My value is $0.5 \left[= \frac{5}{10} \right]$ is $0.07 \left[= \frac{7}{100} \right]$

Example 3

In the number 325.78

- a. What is the value of 7?
- b. What is the value of 2?
- c. What is the value of digit in hundredth?

Solution [V]



a. 0.7

b. 20

c. 0.08



check your understanding

Write the value of circled digit in each of the following.

a. 32.7(4)

b. 174.25

c. 135.58

d. ①42.27

^{&#}x27;Let your child point to each digit in the decimal and say the place value of it and write its value.

Learn

Different forms of decimals

Decimals, like whole numbers, can be written in standard form, word form, unit form and expanded form.

Ones	Tenths	Hundredths
2	7	- 113
3	6	5
5	0	3

	Word form	Unit form	Expanded form	
Standard form	two and seven tenths	2 Ones, 7 Tenths	2+0.7	
3.65	three and sixty-five hundredths	3 Ones , 6 Tenths , 5 Hundredths	3+0.6+0.05	
5.03	five and three hundredths	5 Ones, 3 Hundredths	5 + 0.03	

Example 4

Write in word form.

b.
$$3 + 0.7 + 0.04$$

Solution [V]



- Seven and twelve hundredths.
- b. Three and seventy-four hundredths.
- c. Six and eight hundredths.

Example 5

Write in expanded form.

a. Four and eighteen hundredths.

c. 7 Ones, 2 Tenths.

Solution [V]



a.
$$4 + 0.1 + 0.08$$

b.
$$3 + 0.09$$

Notes for parents:

 Give your child a decimal as 2.35, and ask him/her to write this decimal in different forms as possible as he/she can.

Example 6

Write in unit form. a. 8+0.1+0.03

- c. 3.41

b. Two and forty hundredths.

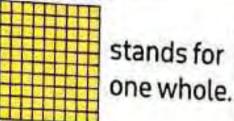
solution [

- a. 8 Ones, 1 Tenth, 3 Hundredths.
- c. 30nes, 4 Tenths, 1 Hundredth.
- b. 2 Ones, 40 Hundredths. Or 2 Ones, 4 Tenths.

Example 7

complete to represent the model.

- 1. a. Standard form:
 - b. Word form ;
 - c. Unit form :_
 - d. Expanded form:



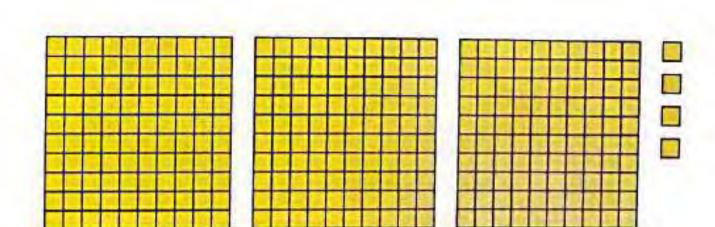
stands for one tenth.

stands for one

4 2 5		
B 2 2		
-		1

- 2. a. Standard form:
 - b. Word form:_____
 - c. Unit form : _____
 - d. Expanded form:

- 3. a. Standard form:
 - b. Word form:____
 - c. Unit form:
 - d. Expanded form:



'After your child write decimals in this page, ask him/her to tell which digit is in the tenths place and which is in the hundredths place.

Solution [V]

- 1. a. 2.16
 - b. Two and sixteen hundredths
 - c. 2 Ones, 1 Tenths, 6 Hundredths
 - d. 2 + 0.1 + 0.06

- 2. a. 1.09
 - b. One and nine hundredths
 - c. 10nes, 9 Hundredths
 - d. 1+0.09

- 3. a. 3.04
 - b. Three and four hundredths
 - c. 3 Ones, 4 Hundredths
 - d. 3 + 0.04

check your understanding

Complete.

- a. 3.72 in expanded form is
- **b.** 5 + 0.1 + 0.07 is word form is
- c. Seven and thirteen hundredths in standard form is
- d. 9.71 in unit form is



• For any decimal in this page, let your child tell the digit and its value for example: 3,72 is 3 ones, 7 tenths. 2 hundredths.

Exercise 18

10-3 The Value of Place

10-4 Decimals in Multiple Forms

	1	# 6 kg	n	CI	CT
MBER		UN	Ц		ST

		REMEMBER SOLVING From the	e schoo	ol book							
		Use the number to answer the questions : 532.89.									
1.	(LI	What is the value of the 3?									
	a.	What digit is in the Hundredths place?									
	þ.										
	C.	What is the value of the digit in the Hundreds place? What digit is in the Tenths place?									
	e.	Why is the value of the digit in the Hundredths place worth less than the digit in the feather place if Hundreds are greater than Tens?	digit in	the							
2.	a.	Write a number formed from 7 Ones, 9 Tenths, 8 Hundredths.									
0		Write a number formed from 2 Tenths, 9 Hundredths.									
	c.	Write a number formed from five Ones, three Tenths, four Hundredths,									
	d.	Write a number formed from sixty-seven Hundredths.									
	e.	Write a number formed from one Ones, four Hundredths.									
3.	Co	mplete.									
	a.	The value of the digit 3 in the number 1.35 is—									
	b.	The value of the digit 5 in the number 132.85 is									
	c.	The value of the digit 9 in the number 19.82 is									
	d.	The place value of the digit 7 in the number 2.74 is									
	e.	The place value of the digit 0 in the number 10.62 is									
	f.	The place value of the digit 1 in the number 759.71 is————————————————————————————————————									
4.	Pu	It (\checkmark) to the correct statement and (X) to the incorrect statement.									
	a.	The value of the digit 5 in the number 14.75 is 0.05	ĺ]							
	b.	The value of the digit 8 in the number 7.85 is 0.80	ĺ	1							
	C,	The place value of the digit 4 in the number 142.238 is Hundredths.	ĺ]							
	d.	The place value of the digit 9 in the number 346.91 is Ones.	l]							
				213							



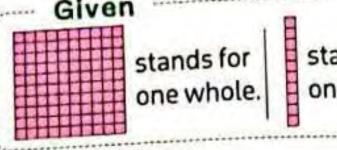


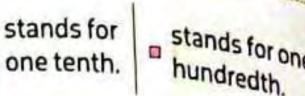




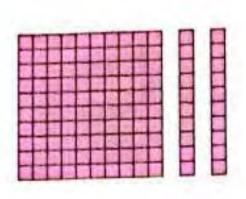
PROBLEM SOLVING

5. Write a number that represent the following model.

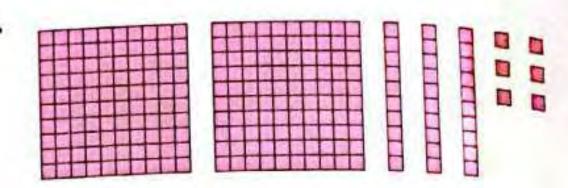




a.



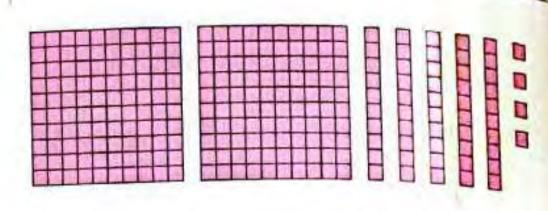
b.

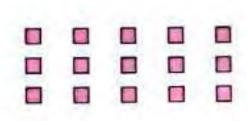


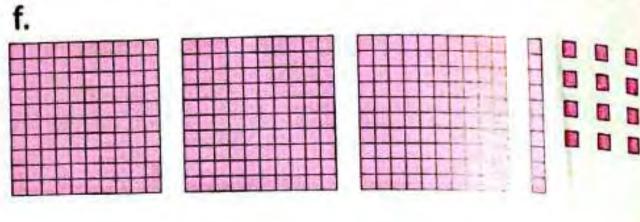
C.

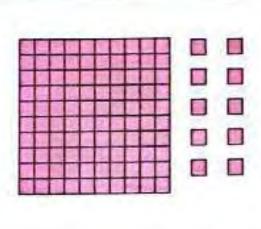


d.

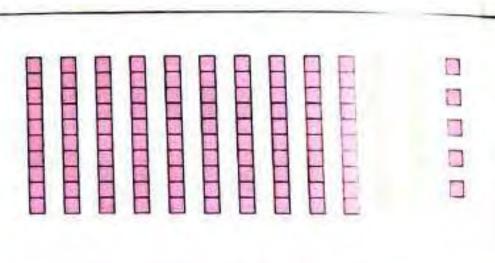








h.



6. Write the number in standard form.



7. Write the number in word form.

- a. 4.53
- b. 1 0.48
- c. 7.08
- d. 3.71
- e. 2 + 0.1 + 0.03
- f. 4 + 0.02
- g. 70nes.3 Tenths,7 Hundredths
- h. 20nes, 9 Hundredths
- 8. Write the number in expanded form.
 - a. 3.78
 - b. 2.04
 - c. Two and fifty hundredths—
 - d. One and eighteen hundredths
 - e. 💷 5 Ones , 6 Tenths , 8 Hundredths —
 - f. 6 Ones, 1 Tenth, 4 Hundredths
- 9. Write the number in unit form.
 - a. 4.52
 - b. 8.01
 - c. Seven and thirty-four hundredths
 - d. Fourteen hundredths
 - e. Sixty-nine hundredths
 - f. 7+0.6+0.01

10. Complete the table.

	Standard form	Word form	Unit form	Expanded form
a.	5.03			
b.		Three and seventy- eight hundredths		
c.			7 Ones , 6 Tenths , 3 Hundredths	
d.				5 + 0.1 + 0.07
e.	15.9			
f.		Sixteen and six hundredths		
g.			5 Ones , 9 Tenths	
h.				+ 0.08

11. Complete to represent each model.

a. Standard form:

Word form:

Unit form:

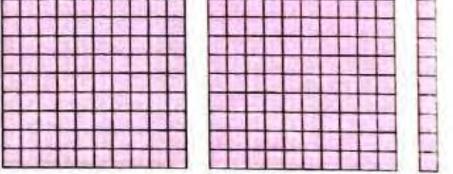
Expanded form:



stands for one whole.

stands for one tenth.

ands for one indredth.

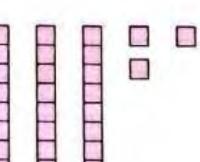


b. Standard form:

Word form:

Unit form:

Expanded form:

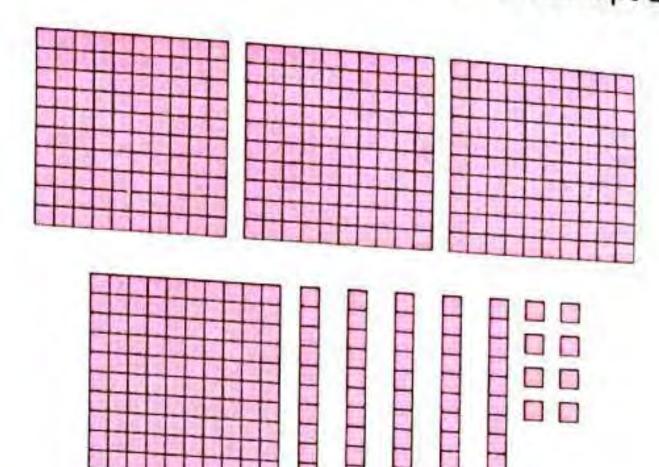


c. Standard form:

Word form:

Unit form:

Expanded form:

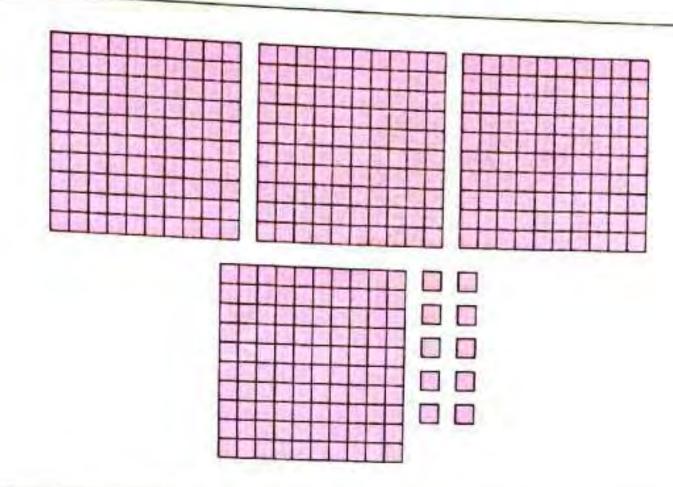


d. Standard form:

Word form:

Unit form :

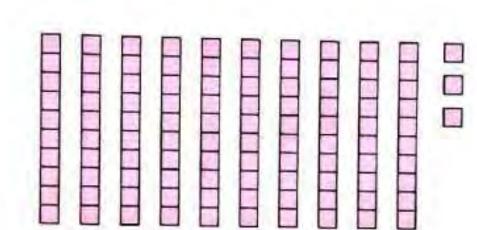
Expanded form :



Word form:

Unit form:

Expanded form:



12. a. Draw a circle around the numbers that equals thirty and two tenths.

3.2 , 30.02 , 3 Tens , 2 Tenths , 30.2 , 30 + 0.20 , 30 + 0.02

b. Draw a circle around the numbers that equals four and five hundredths.

4.54 + 0.50 , 4 + 0.05 , 4 Ones , 5 Tenths , 4 Ones , 5 Hundredths

c. Draw a circle around the numbers that equals 7 + 0.1 + 0.05

Seven and fifty-one hundredths , 7.15 , 7+0.5+0.1 ,

70nes,1Tenth,5 Hundredths , 70 + 0.1 + 0.05

d. Draw a circle around the numbers that equals 3 + 0.2 + 0.03

3 Tens, 23 Hundredths , 3.23 , 3.023 , 3 Ones, 23 Hundredths

e. Draw a circle around the numbers that equals 8 Ones, 13 Hundredths

8.13 , 8+0.1+0.03 , eight and thirty hundredths

13. Complete each of the following.

b. Nine hundredths =

c. Twenty two and thirty-five hundredths =

d. Eighteen and six tenths =

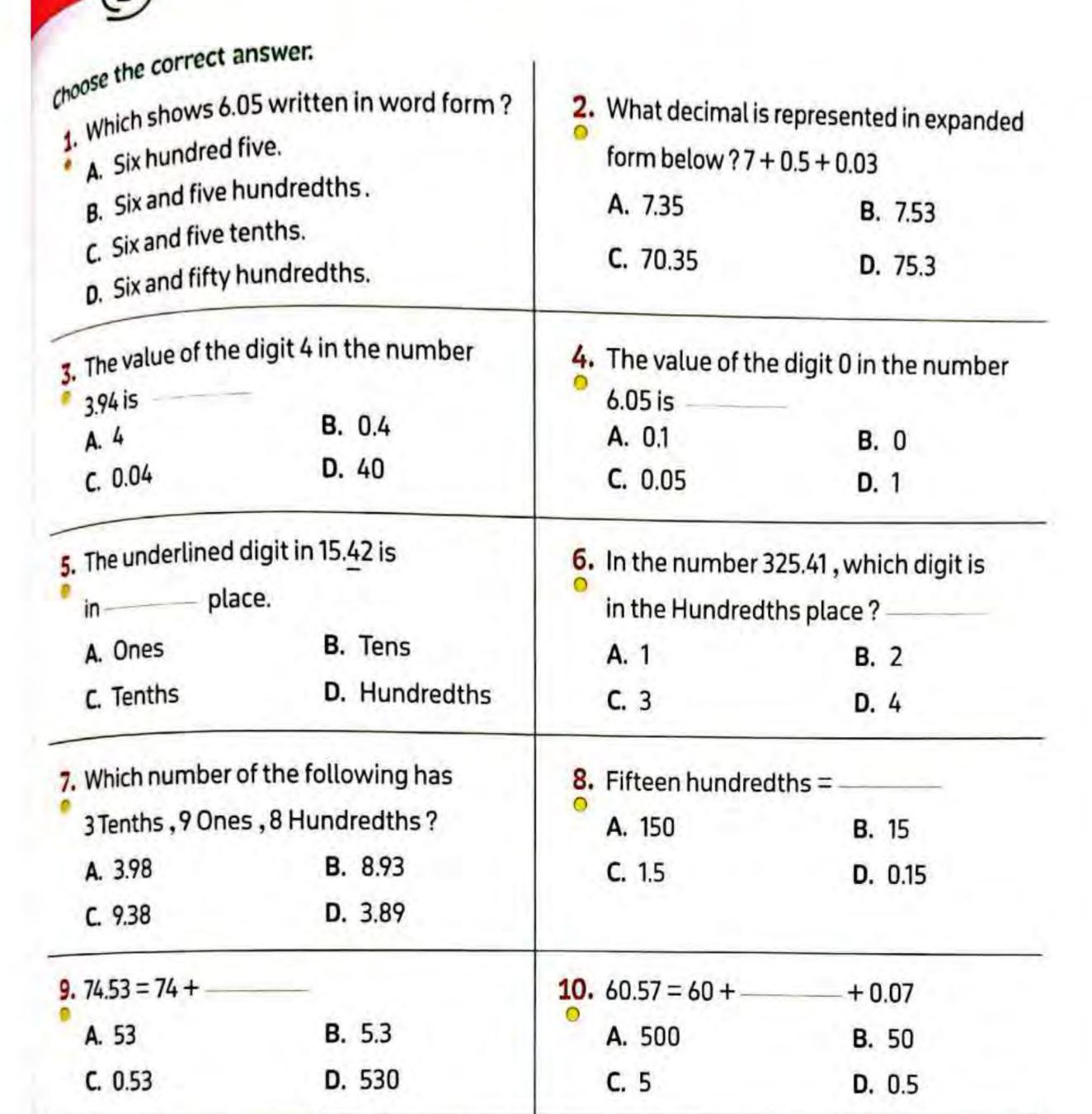
m.
$$6.48 = 6 + + 0.08$$

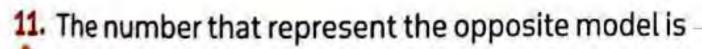
14. Write two numbers have 4 tenths ———, ———

Challenge

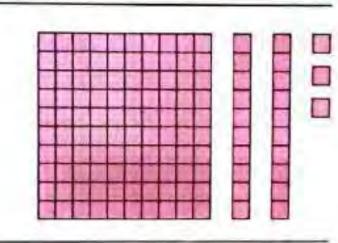
15. I am a decimal greater than 1 but less than 3. All my digits are even. My Tenths digit is three times my Ones digit. My Hundredths digit is 8. What decimal am I?

Multiple Choice Questions



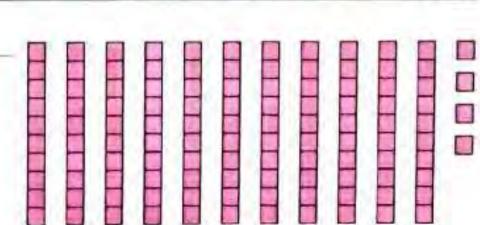


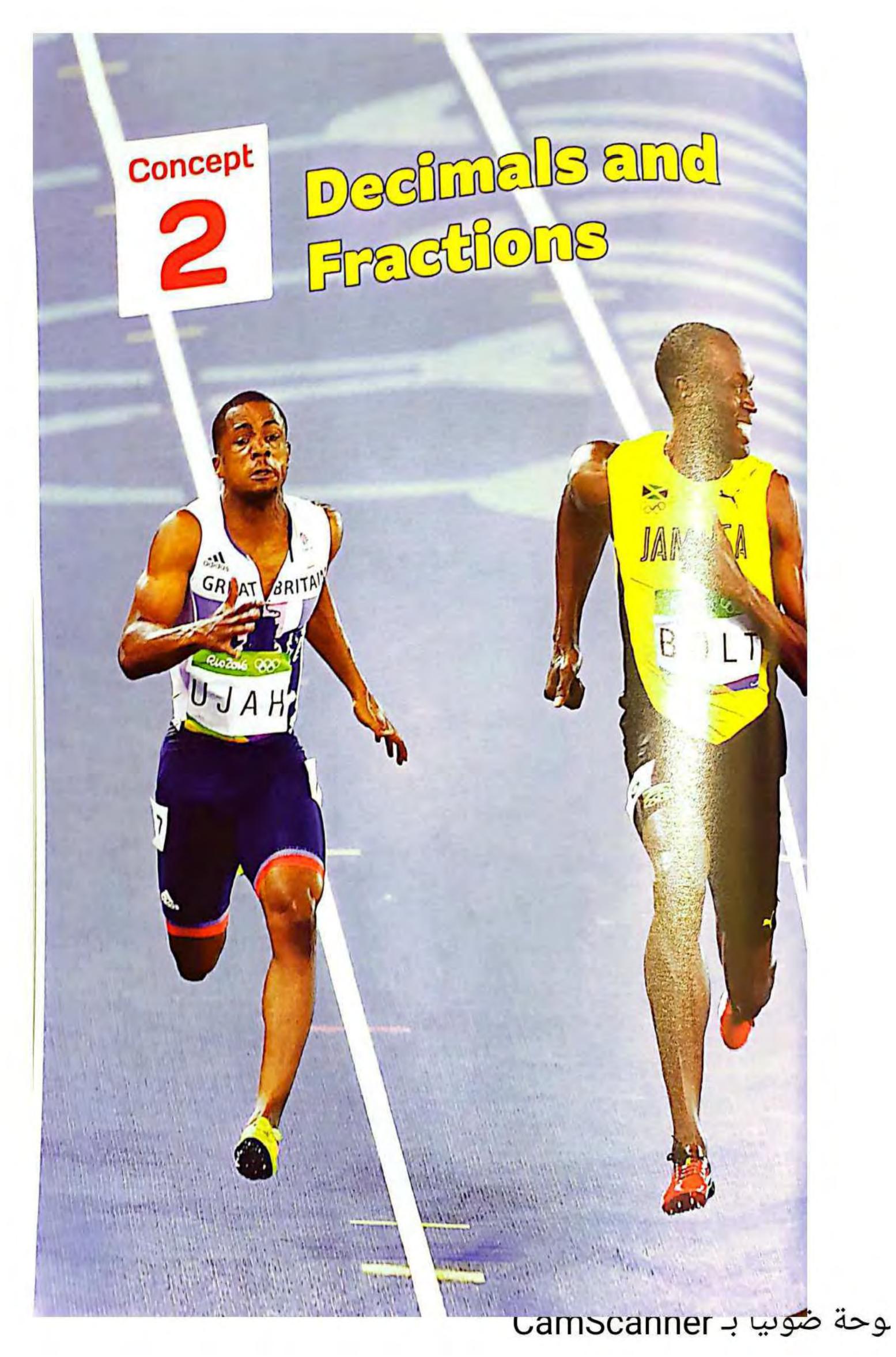
- A. 1.12
- B. 1.23
- C. 1.32
- D. 2.32

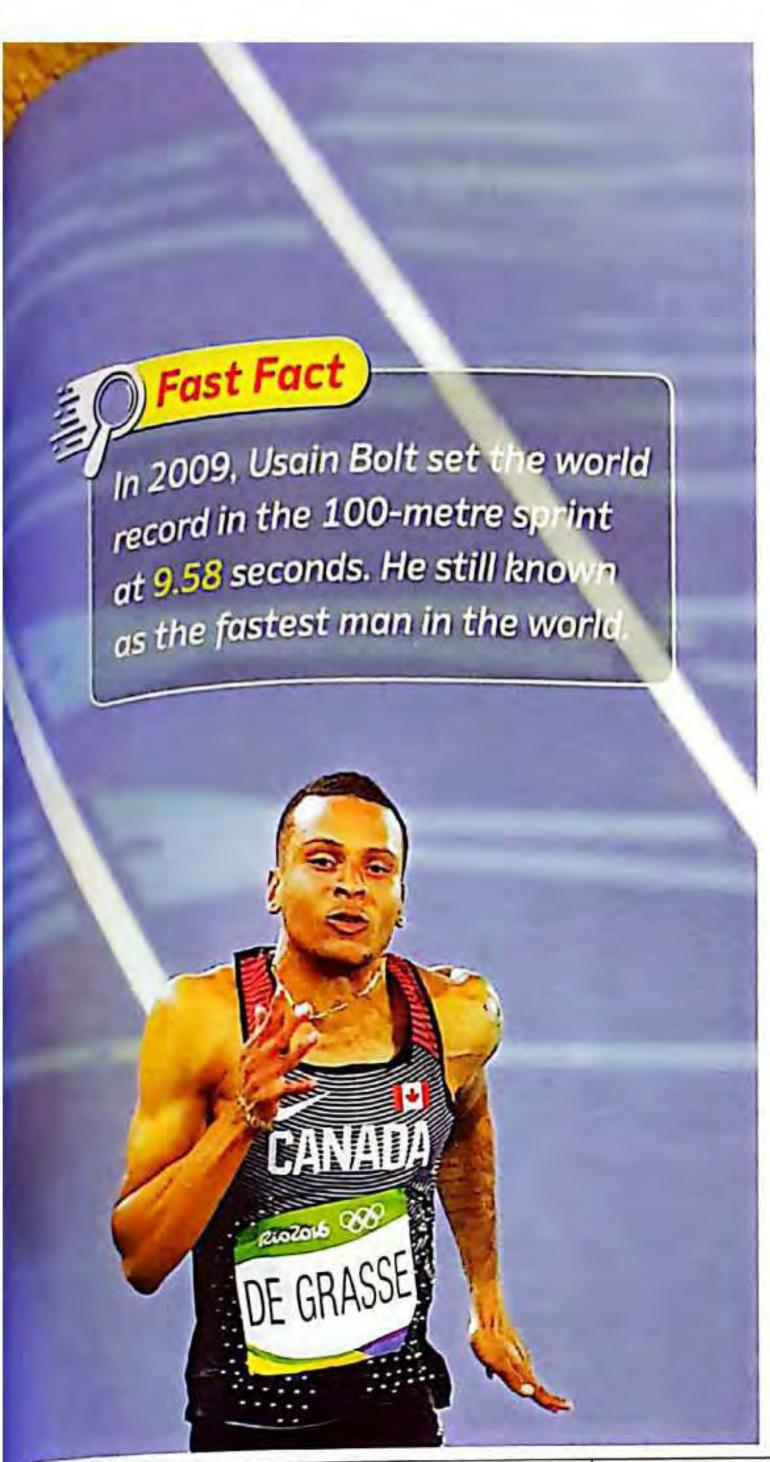


12. The number that represent the opposite model is

- A. 1.41
- B. 1.4
- C. 11.4
- D. 1.14







Concept Overview

In concept 2:

Decimals and Fractions, students strengthen their ability to read, write, and identify decimals to the Hundredths place using visual models.

They continue to practice representing a quantity as a fraction and a decimal and delve further into the relationship between the two.

Finally, they expand upon the idea that 0.3 = 0.30 to help express equivalent fractions with denominators of 10 and 100.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
	10-5 Same Value, Different Ways	Equivalent - Decimal notation - Denominator	Students will read and write decimals as fractions.
Lesson 3	10-6 The Whole Breakdown	Review vocabulary as needed.	 Students will explain the relationship between decimals and fractions. Students will explain the relationship between decimals, fractions, and the whole.
Lesson 4	10-7 All Things Equal	Equivalence - Equivalent	Students will create equivalent fractions and decimals to the Hundredths place.

Lesson

10-5 Same Value, Different Ways

10-6 The Whole Breakdown

Learn

Same value in different forms

In the long jump competition,

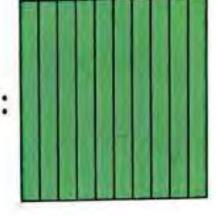
Adel jumped two and six tenths metres.

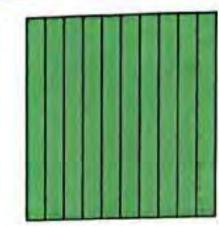
How can you represent this length in

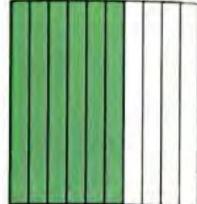
different forms?



Model:







Mixed Number: $2\frac{6}{10}$

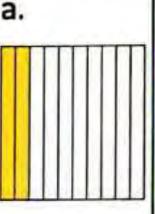
Decimal: 2.6

Word form: Two and six tenths.

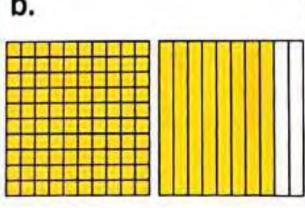


Write the fraction and the decimal for the shaded part

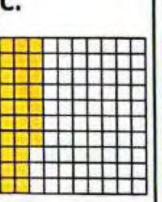
a.



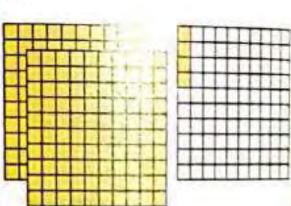
b.



C.



d.



Solution [



a.
$$\frac{2}{10}$$
 , 0.2

b.
$$1\frac{8}{10}$$
 , 1

d.
$$2\frac{4}{100}$$
 , 2.04

Notes for parents:

 Remind your child that he/she can write three forms for the shaded parts the fraction, the decimal, and the word form.

Example 2

Write the fraction for each of the following decimals.

- a. 0.4
- **b.** 0.13

- c. 0.07
- d. 2.93

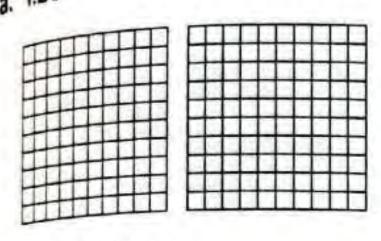
solution 🕅

- **b.** $\frac{13}{100}$
- c. $\frac{7}{100}$
- d. $2\frac{93}{100}$

Example 3

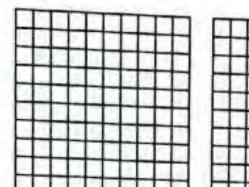
color a model for each decimal and write it in fraction form.

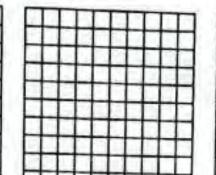
a. 1.28

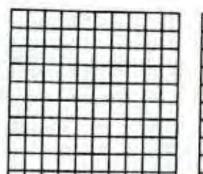


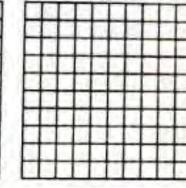
The fraction is

b. 3.02





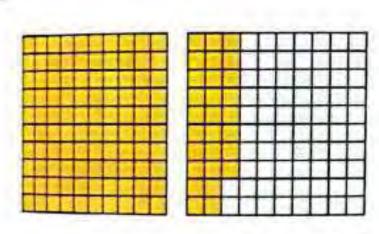




The fraction is

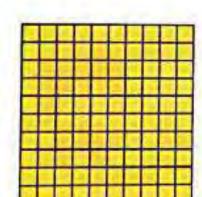
solution 🕎

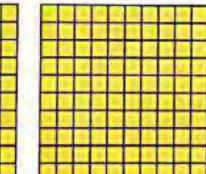


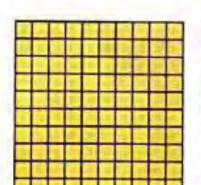


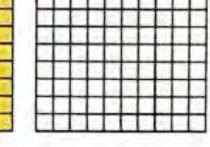
The fraction is $1\frac{28}{100}$

b.









The fraction is $3\frac{2}{100}$



theck your understanding

Write the fraction form for each of the following decimals.

a. 0.9

b. 2.7

c. 3.74 —

d. 7.05

'Ask your child to choose one problem from the check your understanding and explain his/her answer.

Learn

The Parts of the one whole

There are 10 tenths

in the whole one

then 1 = 10 tenths =
$$\frac{10}{10}$$



Examples

• 5 = 50 tenths =
$$\frac{50}{10}$$

• 1.7 = 17 tenths =
$$\frac{17}{10}$$

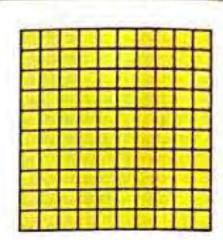
• 9 = 90 tenths =
$$\frac{90}{10}$$

• 10.3 = 103 tenths =
$$\frac{103}{10}$$

There are 100 hundredths

in the whole one

then, 1 = 100 hundredths =
$$\frac{100}{100}$$



Examples

• 5 = 500 hundredths =
$$\frac{500}{100}$$

• 1.7 = 170 hundredths =
$$\frac{170}{100}$$

• 9 = 900 hundredths =
$$\frac{900}{100}$$

• 10.3 = 1030 hundredths =
$$\frac{1030}{100}$$

More Examples

check your understanding

Write each fraction form for each of the following decimals.

e.
$$\frac{185}{100}$$
 = hundredths.

Notes for parents:

· Ask your child how many tenths are there in 6, and how many hundredths in 6?

Exercise

10-5 Same Value, Different ways

10-6 The Whole Breakdown

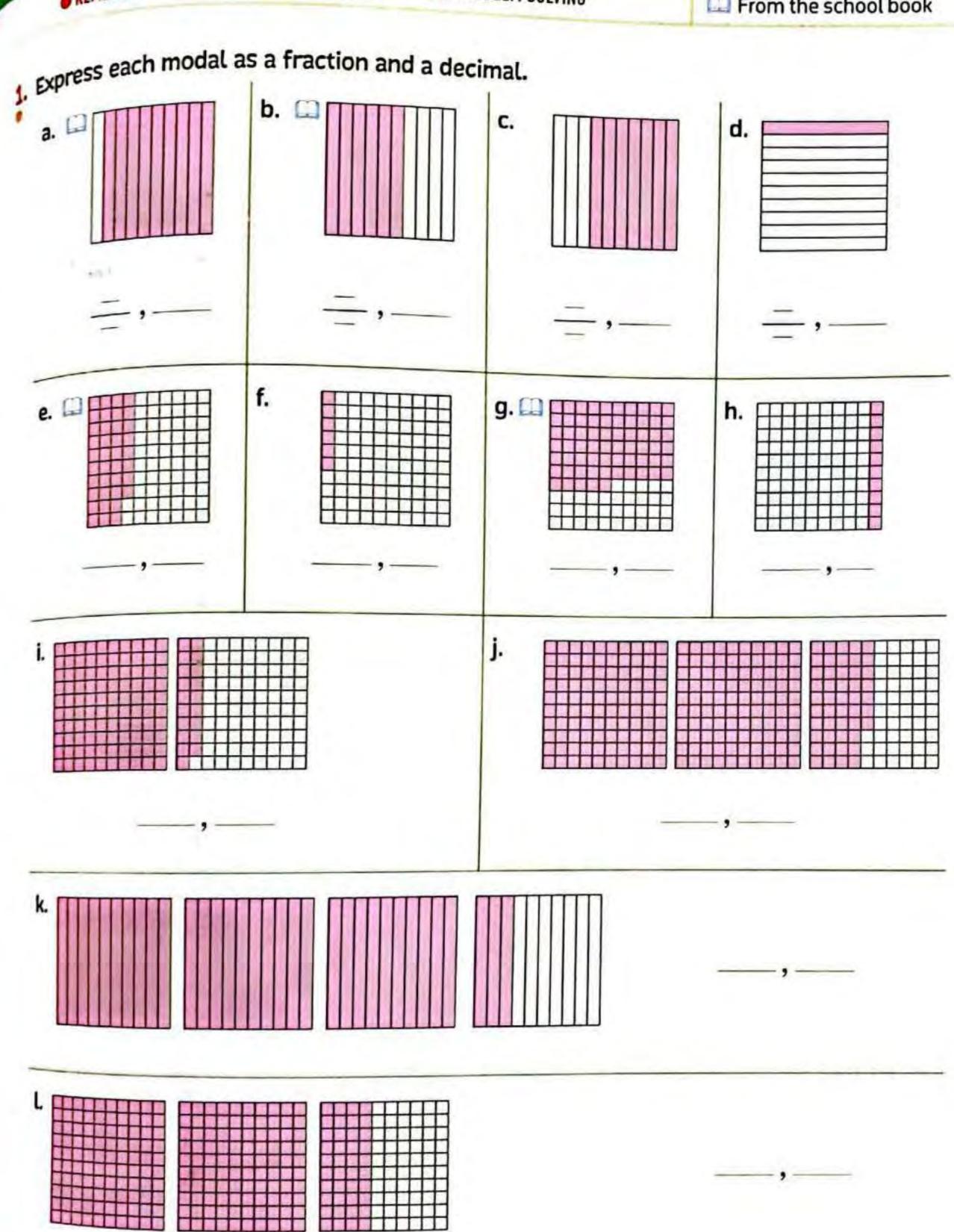
REMEMBER



O APPLY

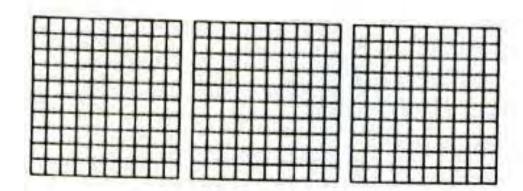
ROBLEM SOLVING

From the school book

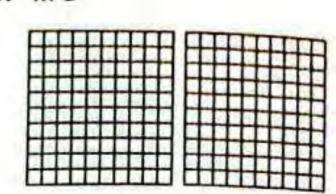


2. Create a model for each decimal and write it as a fraction.

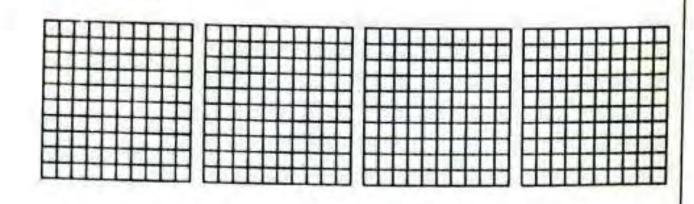
a. 🛄 2.93



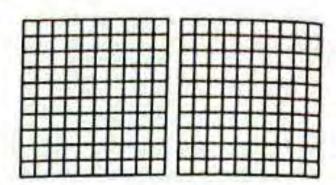
b. 1.70



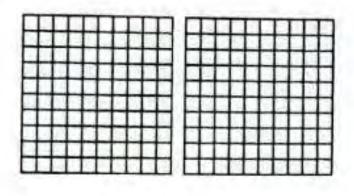
c. 🛄 3.04



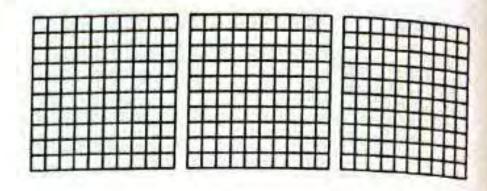
d. 1.32



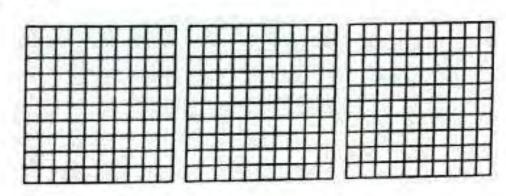
e. 1.12



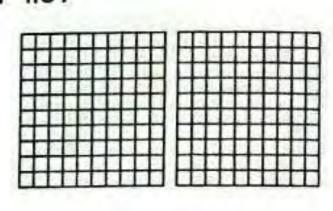
f. 1 2.74



g. 2.3



h. 1.09



Express the decimals as fractions.

pecompose the units to represen	nt each number as Tenths and then write		
the state of the s	and then write		
a. (.13	b. L.11		
Tenths:	Tenths:		
In fraction form:	In fraction form :		
c. 4	d. 1.3		
Tenths:	Tenths:		
In fraction form:	In fraction form:		
e. 1.5	f. 111 2.3		
Tenths:	Tenths:		
In fraction form:	In fraction form:		
E1	minaction form:		
g. 5.1	h. 17.4		
Tenths:	Tenths:		
In fraction form:	In fraction form:		
. 10.8	j. 24.6		
Tenths:	Tenths:		
In fraction form :———	In fraction form:		
Decompose the units to represent	nt each number as Hundredth and then write the		
a. 💷 1	b. 🕮 3		
Hundredths:	Hundredths:		
In fraction form:	In fraction form:		
. 5	d. 19		
Hundredths:	Hundredths:		
In fraction form:	In fraction form:		

e. 1115

Hundredths:

In fraction form:

f. (112.3

Hundredths:

In fraction form:

g. 3.7

Hundredths:

In fraction form:

h. 1110.8

Hundredths:

In fraction form:

i. 13.2

Hundredths:

In fraction form:

j. 0.4

Hundredths:

In fraction form: -

k. 3.33

Hundredths:

In fraction form:

L. 4.15

Hundredths:

In fraction form:

6. How can you write 18 tenths as a fraction and as a decimal?

7. How can you write 825 hundredths as a decimal and as a fraction?

8. Complete.

a. 3.7 = tenths.

c. 198 tenths = ——— [as a decimal]

e. 3.74 = — hundredths.

g. 39 tenths = (as a decimal)

b. 5.2 = — hundredths.

d. 291 hundredths = _____ (as a fraction)

f. 89.5 = _____ tenths.

h. 2.14 = _____ [hundredths]

9. put (1) to the correct statement and (X) to the incorrect statement.

a. $7.02 = 7\frac{2}{10}$

[

b. $14.80 = 14\frac{8}{10}$

[

c. 32 tenths = 3.2

[

d. 175 hundredths = 17.5

[

e. 8.1 = 81 tenths

(

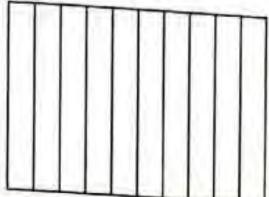
] f. 30 hundredths = $\frac{30}{10}$

[

g. 10.6 = 1060 hundredths

[

Shade the model to show that 6 students out of 10 have cats in their homes. Represent this quantities as a decimal and as a fraction.



11. • Ayda has a brother of height 50 $\frac{1}{10}$ cm.

Express the height in the form of a decimal —

- How can you rewrite $50 \frac{1}{10}$ cm.
 Using tenths only?
- 12. Adam has $1\frac{4}{10}$ liters of water.

Express the volume in the form of a decimal —

- How can you rewrite 1 $\frac{4}{10}$ using tenths?
- 13. Ahmed surveyed 100 students.

Of the 100 students, $\frac{38}{100}$ of them have a dog for pet.

- How many students have a dog?
- How can you rewrite $\frac{38}{100}$ using hundredths? —
- 14. Mr. Marawan has 3 full boxes of crayons and $\frac{85}{100}$ of another box of crayons.

Write a decimal to show the total number of boxes of crayons Mr. Marawan has.

Multiple Choice Questions

Choose the correct answer.

A.
$$\frac{2}{10}$$

c.
$$\frac{22}{100}$$

B.
$$\frac{2}{100}$$

D.
$$\frac{20}{10}$$

B. 1
$$\frac{5}{100}$$
D. 1 $\frac{15}{100}$

A.
$$5\frac{7}{100}$$

B.
$$5\frac{70}{100}$$

D.
$$7\frac{5}{10}$$

hundredths.

tenths.

hundredths.

B. 1750

D. 1.75

A. 20.9

tenths. B. 2.09

D. 2090

9. The fraction that represents

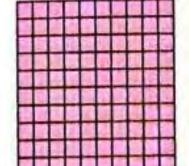
the shaded part =

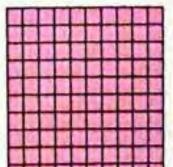
A.
$$\frac{34}{100}$$

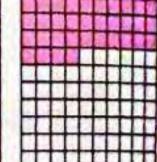
B.
$$1\frac{43}{100}$$

c.
$$2\frac{34}{100}$$

D.
$$2\frac{43}{100}$$







10. 128 tenths =

A. 1.28

B. 12.8

C. 128

D. 1280



10-7 All Things Equal

Learn

Equivalent fractions are fractions that name the same number.

Use models and paper folding to find equivalent fractions. Are $\frac{2}{10}$ and $\frac{20}{100}$ equivalent fractions

Activity

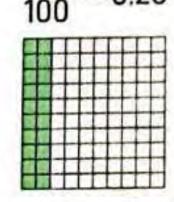
Shade $\frac{2}{10}$ of the tenths model and $\frac{20}{100}$ of the hundredths model.



$$\frac{2}{10} = 0.2$$

Two tenths 2 out of 10

$$\frac{20}{100} = 0.20$$



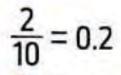
Twenty hundredths 20 out of 100

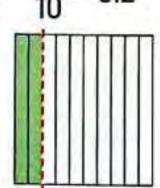
Step 2

Fold $\frac{2}{10}$ of the tenths model and

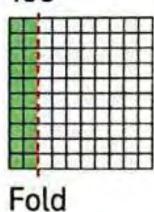
 $\frac{20}{100}$ of the hundredths model.

Then compare the models.





$$\frac{20}{100} = 0.20$$



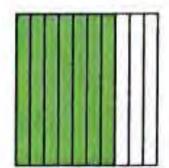
The folded parts of the models are the same size.

So , $\frac{2}{10}$ and $\frac{20}{100}$ are equivalent fractions and 0.2 and 0.20 are equivalent decimals.

Example 1

Write the equivalent fractions and equivalent decimal to represent the shaded part.

a.



The fractions: $\frac{7}{10} = -$

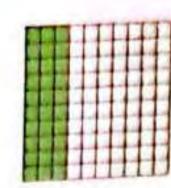
The decimal: 0.7 = ----

Notes for parents :

Remind your child to write a 0 in the hundredths place for decimals given in tenths.

Lesson 4

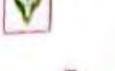




The fractions: 30 =

The decimal: 0.30 =

Solution [V



a. The fraction: $\frac{7}{10} = \frac{70}{100}$

The decimal: 0.7 = 0.70

b. The fraction: $\frac{30}{100} = \frac{3}{10}$

The decimal: 0.30 = 0.3

Example 2

Write the equivalent fraction and equivalent decimal to each of the following.

a. $\frac{60}{100}$ The fraction = The decimal =

The fraction = b. $\frac{9}{10}$ The decimal = -

The fraction = c. 0.20 The decimal =

The fraction = d. 0.1 The decimal =

Solution [V



a. $\frac{6}{10}$, 0.6

b. $\frac{90}{100}$, 0.90 c. $\frac{2}{10}$, 0.2 d. $\frac{10}{100}$, 0.10

check your understanding

Write the equivalent fraction and equivalent decimal to each of the following.

a. $\frac{80}{100}$ The fractions is -The decimal is

The fractions is

The decimal is

The fractions is c. 0.50 The decimal is

The fractions is ---d. 0.6

The decimal is -

Notes for parents:

• Ask your child to write $\frac{9}{10}$ in the two ways, once with one decimal place, the other with two decimal places.

10-7 All Things Equal

REMEMBER

O UNDERSTAND

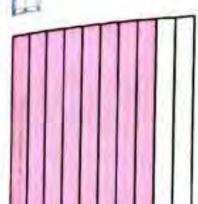
O APPLY

PROBLEM SOLVING

From the school book

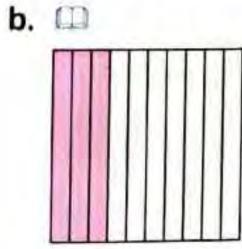
1. Create an equivalent model, record its fraction and write as a decimal fraction.

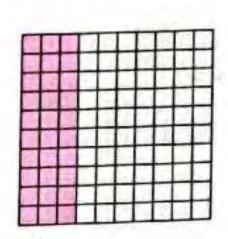
a. 🛄



The fractions: $\frac{8}{10}$ =

The decimal: 0.8 = -

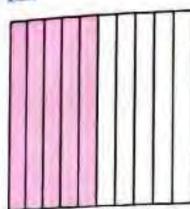


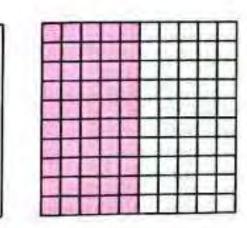


The fractions: $\frac{30}{100}$ =

The decimal: 0.30 = -

c. 🕮

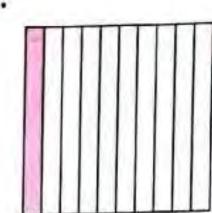


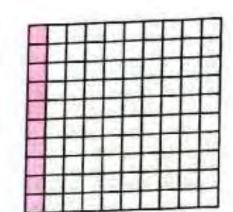


The fractions: $\frac{5}{10} =$

The decimal: 0.5 = _____

d.

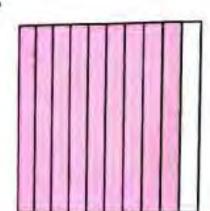


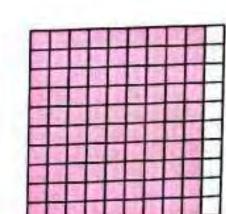


The fractions: $\frac{10}{100} =$

The decimal: 0.10 = _____

e.

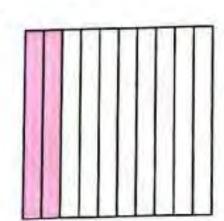


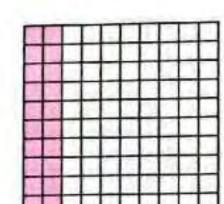


The fractions:

The decimal: ____ = ___

f.



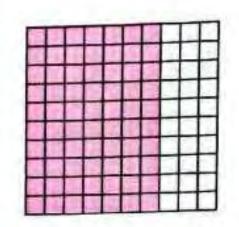


The fractions: = = =

The decimal: ____ = ____

g.

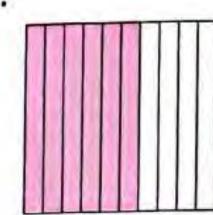


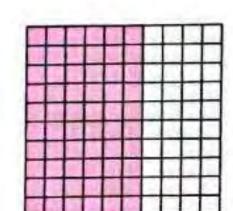


The fractions: --- =

The decimal: ____ = ____

h.





The fractions: = =

The decimal: ____ = ____

Are the two decimals equivalent? Write equivalent or not equivalent.

- a. 0.7 and 0.70
- c. 0.9 and 0.09
- e. 0.17 and 0.07

- b. 0.04 and 0.4
- d. 0.28 and 0.82
- f. 0.1 and 0.10

Write an equivalent decimal for each. You may use decimal models.

- a. 0.8
- c. 0.90

- e. 0.5
- g. 0.40
- h. 0.6

Are the two fractions equivalent? Write equivalent or not equivalent.

- a. $\frac{3}{10}$ and $\frac{30}{100}$
- c. $\frac{80}{100}$ and $\frac{8}{10}$
- e. $\frac{60}{100}$ and $\frac{6}{10}$

- **b.** $\frac{5}{100}$ and $\frac{50}{10}$
- d. $\frac{4}{100}$ and $\frac{4}{10}$
- f. $\frac{20}{100}$ and $\frac{2}{100}$

5. Write an equivalent fraction for each.

- f. $\frac{20}{100}$
- g. $\frac{3}{10}$

6. Record an equivalent fraction and decimal for each problem.

- a. $\Box \frac{1}{10}$

 - The fraction:

- b. $\frac{70}{100}$
 - The fraction: -
- The decimal:
- c. $\Box \frac{6}{10}$

The decimal:

The decimal: -

- The fraction:
- e. 📖 0.30
 - The fraction:
 - The decimal:

- d. 🕮 0.4
 - The fraction:
 - The decimal:
- f. 1 0.9
 - The fraction:
 - The decimal:-

g. 10 10

The fraction:

The decimal:

h. $\square 1\frac{4}{10}$

The fraction:

The decimal:

i. 41 2.1

The fraction:

The decimal: —

j. 3<u>30</u>

The fraction:

The decimal:

k. 4 10

The fraction:

The decimal: -

l. 5.70

The fraction: -

The decimal:

7. Fill the missing denominator or numerator. Circle the fraction that is more than 1 whole.

- d. $\square \frac{200}{100} = \frac{\square}{10}$
- j. $\frac{900}{100} = \frac{1}{10}$

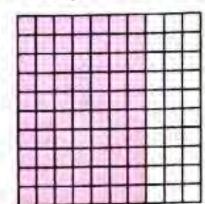
- c. $\Box \frac{4}{10} = \frac{40}{10}$
- 8. Put (1) to the correct statement and (X) to the incorrect one.

- a. $\frac{3}{10}$ is equivalent to 0.30 [] b. 0.70 is equivalent to $\frac{7}{100}$

- c. $\frac{50}{100} = \frac{50}{10}$
-) **d.** $0.04 = \frac{40}{100}$

- e. 9 tenths is equivalent to $\frac{90}{100}$ [
- f. 80 hundredths is equivalent to 0.8 (
- g. The decimal that represented by the shaded part





is 1.7

- 9. Mina's family plants a garden on 0.5 feddan of their land.
 Write an equivalent decimal and fraction for this amount.
- 10. Amgad said that 5.20 is greater than 5.2, because 20 is greater than 2. Was he right? Explain.
- 11. Join each value written by unit form with its equivalent fraction with its decimal.

a. One tenth

4 10

0.03

b. 3 hundredths

1 <u>6</u>

0.7

c. 7 tenths

42 100

0.1

d. 4 tenths

<u>3</u> 100

1.6

e. 42 hundredths

<u>7</u>

0.42

f. One ,6 tenths

1 10

0.4

Challenge

12. Make a model to show that 0.8 and 0.80 are equivalent. Explain your model.

Multiple Choice Questions

Choose the correct answer.

- 1. Which of the following is equivalent
 - to 10?
 - A. 0.60
- **B.** 0.06
- c. $\frac{60}{10}$
- D. 1.6
- 2. Which of the following is NOT equivalent to $\frac{50}{100}$?
 - A. $\frac{5}{10}$
- B. 0.5
- C. 0.50
- D. 0.05

- 3. Which fraction is equivalent to 0.3?
 - A. 30
- B. $\frac{3}{100}$
- : 3 10
- D. 300 100
- 4. Which fraction is equivalent to 0.45?
 - A. $\frac{450}{100}$
- B. $\frac{450}{10}$
- c. $\frac{45}{10}$
- D. $\frac{45}{100}$

- 5. 7 is equivalent to -
 - A. 7

C. 0.07

- B. 70
- D 7

- $\frac{90}{100}$ is equivalent to
 - A. 0.09
- B. $\frac{9}{10}$
- c. $\frac{9}{100}$
- D. 900

- 7. $3\frac{7}{10}$ is equivalent to
 - A. 0.37
- **B.** 3.07
- C. 3.70
- D. 37

- 8. 8 tenths is equivalent to
 - A. 0.08
- B. 80
- c. $\frac{8}{100}$
- D. $\frac{80}{100}$

- 9. Which of the following is greater than 1?
 - A. $\frac{300}{100}$
- B. $\frac{30}{100}$
- c. $\frac{3}{10}$
- **D.** 0.30
- 10. Which of the following is smaller than 1?
 - A. $\frac{400}{100}$
- B. $\frac{30}{10}$
- c. $\frac{70}{100}$
- D. $\frac{50}{10}$

- 11. 70 tenths is equivalent to
 - A. 0.7
- B. 0.07
- C. 0.70
- D. 7

- 12. Which of the following is NOT equivalent
 - to $1\frac{10}{100}$?
 - A. 1.1
- B. 1.10
- C. 1.01
- D. $1\frac{1}{10}$





10-8 Model Comparisons 10-9 Not All Digits Are Equal 10-10 Comparing Tenths and Hundredths

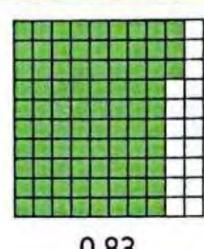
Comparing using models Learn

Sara lives 0.83 kilometers from the sports clup. Shady lives 0.75 kilometers from the same clup.

Who lives the least distance from the clup?



You can use models to compare decimals



0.83

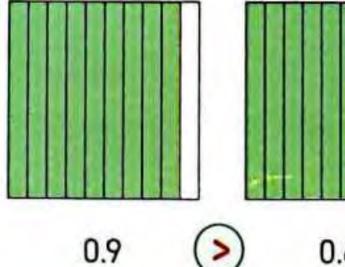
0.75

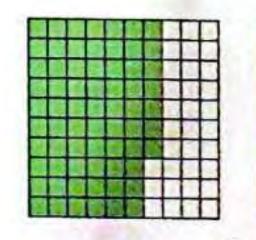
Since, the model for 0.75 has less shaded squares.

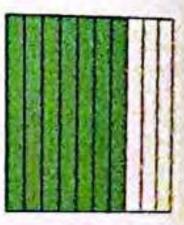
0.83 > 0.75

So, Shady lives the least distance from the clup.

More Examples:







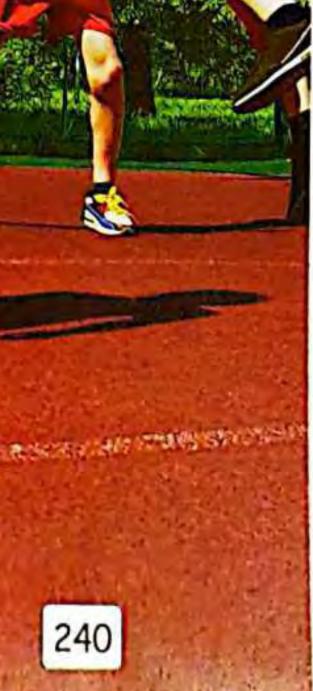
0.6

0.67

0.7

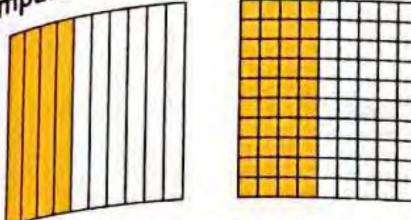
Notes for parents:

· Make sure your child use the models in a correct way. He/she should use models of the same size.

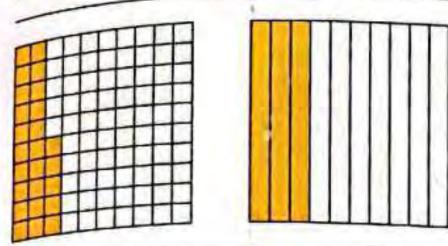


Example 1

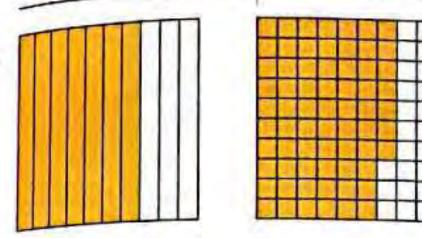
Write the decimals. compare the decimals.



- The decimals :
- The numerical statement that represent the comparing :

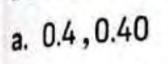


- The decimals :
- The numerical statement that represent the comparing :



- The decimals : _______,
- The numerical statement that represent the comparing:

solution [V



b. 0.25, 0.3

0.25 < 0.3

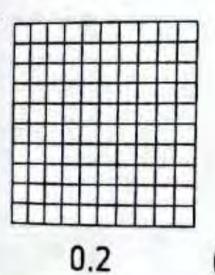
c. 0.7, 0.67

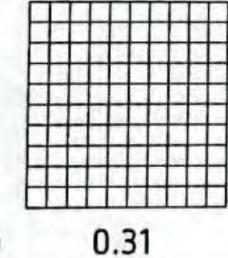
0.7 > 0.67

0.4 = 0.40

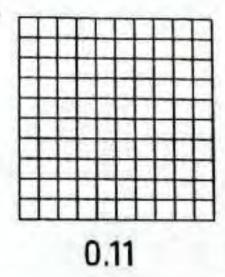
check your understanding

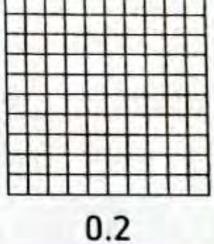
Shade the model as a decimal, then compare write"> or < or =" using models.

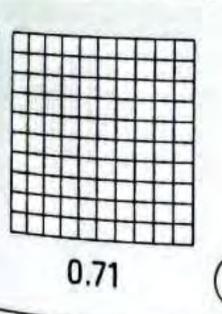


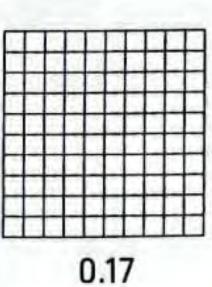


b.

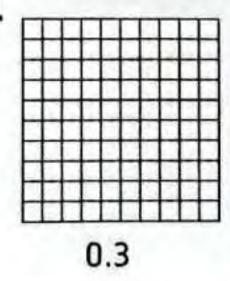


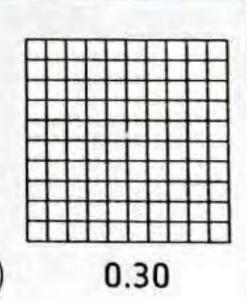






d.





'Ask your child how he/she can use models to compare 0.3 and 0.30

Learn

Decimals with different digits.

You can use place value charts to compare decimals.

Examples

Compare 0.36 and 0.56

Ones	,	Tenths	Hundredths
0		3	6
0		5	6

- Begin with the digit in the greatest place value.
- Compare ones: 0 ones = 0 ones
- Compare tenths: 3 tenths < 5 tenths

Compare 0.6 and 0.06

Ones	Tenths	Hundredths
0	6	0
0	0	6

- Begin with the digit in the greatest place value.
- Compare ones: 0 ones = 0 ones
- Compare tenths: 6 tenths > 0 tenths

Example 2

Use place value chart to compare the following decimals.

- a. 1.42 and 1.25
- b. 1.7 and 1.73
- c. 2.8 and 2.80

Solution [V]



1.	Ones	Tenths	Hundredths
	1	4	2
	1	2	5

4 > 2 1 = 1

Since, 4 > 2 So, 1.42 >

Line up the decimal points. Compare the digits, beginning with the greatest place value.



D,	Ones	Tenths	Hundredths
	1	7	0
	1	7	3

1 = 1 7 = 70 < 3

Since, 0 < 3 So, 1.7

Ones	Tent	Hundredths
2	5	0
2	3	0

0 = 0So, 2.8 (=) 2.80

Notes for parents:

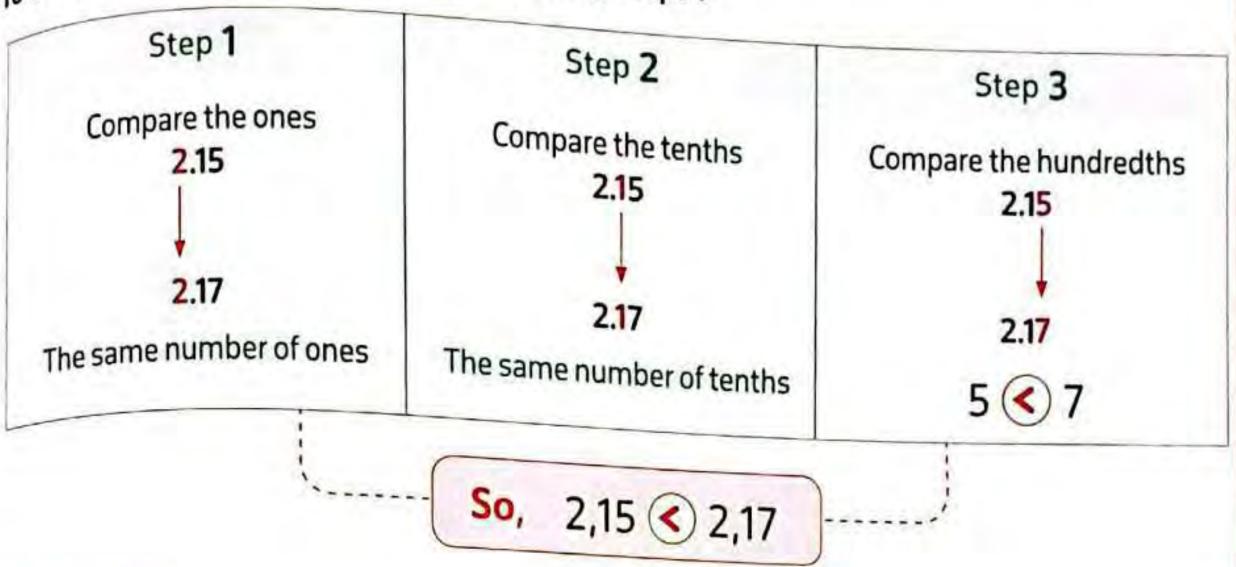
Remind your child to begin comparing with the greatest place value.

Example 3

Compare 2.15 and 2.17

solution [?

To compare 2.15 and 2.17, follow the following steps:



Check your understanding

- 1. Use place value chart to compare each of the following two decimals.
 - a. 0.37 and 0.7

Ones	Tenths	Hundredths

b. 0.35 and 0.29

Ones	•	Tenths	Hundredths
	-		

c. 0.80 and 0.09

Ones	Tenths	Hundredths

d. 0.6 and 0.60

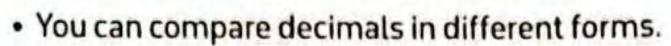
Tenths	Hundredths
	· Tenths

- 2. Compare. Write "> or < or = ".
 - a. 0.52 0.54
- **b.** 0.9 0.82
- c. 1.52 1.45

- d. 3.7 () 3.70
- e. 3.4 () 4.56
- f. 2.05 () 2.15

Remind your child to begin comparing with the greatest place value.

Comparing tenths and hundredths Learn



Rewrite $5\frac{62}{100}$ as a decimal.

$$5\frac{62}{100} = 5.62$$



Ones	Tenths	Hundredths		
5	6	2		
5	4	7		

5.62 > 5.47

- · Begin with the digit in the greatest place value.
- Compare the ones: 5 ones = 5 ones
- Compare the tenths: 6 tenths > 4 tenths

So, 5.62 is greater than 5.47

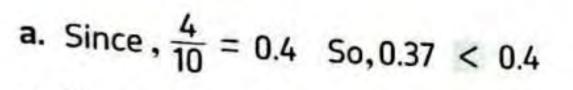
Example 3

Compare using "> or < or = ".

- a. 0.37
- c. 24 tenths 0.24
- e. 3.00

- **b.** 1.02
- d. 2 Ones,5 Tenths

Solution [7]



- c. Since, 24 tenths = 2.4, 50, 2.4 > 0.24
- e. 3.00 > 0.30

- **b.** Since $\frac{102}{100} = 1.02$ So, 1.02 = 1.02
- d. 2.5 > 2.05

Check your understanding

Compare using "> or < or = ".

- a. 3 + 0.1 + 0.07 () 3.2
- c. 9.01 (

- b. 5 hundredths (
- d. 4 ones, 3 tenths, 1 hundredths (

Notes for parents:

Ask your child how is comparing decimals like comparing whole numbers.

Exercise 21

10-8 Model Comparisons 10-9 Not All Digits Are Equal 10-10 Comparing Tenths and Hundredths

- 25								
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	-	-	u	c	М	В	c	ı
	•	н	М	L	,	•	-	

O UNDERSTAND

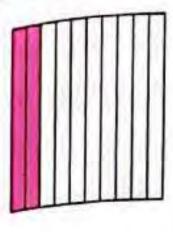
O APPAY

PROBLEM SOLVING

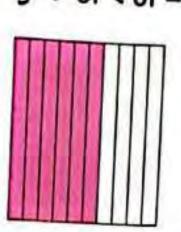
From the school book

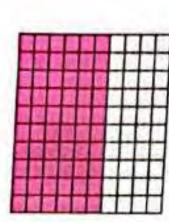
Write the decimal for each model and compare using "> or < or = ".

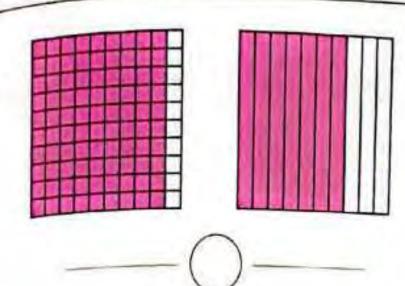
a.



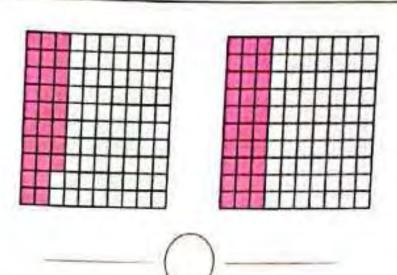
b.

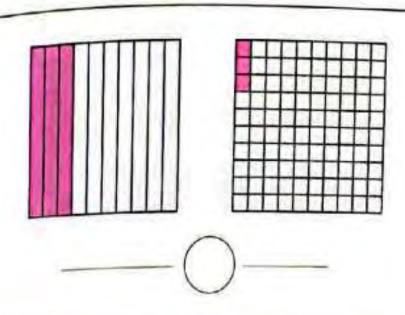


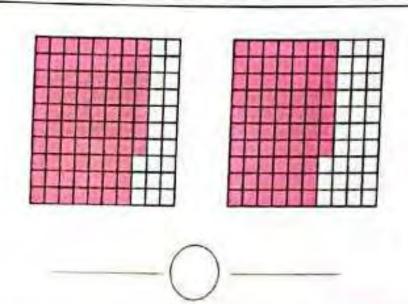




d.







2. \square Rewrite the decimals in the chart. Use the symbols "> , < or = ".

0.4 a. 0.34 -

Ones	Decimal point	Tenths	Hundredths
-			
=			

b. 0.45 -0.04

Ones	Decimal point	Tenths	Hundredths
		_	

c. 0.23 -0.3

Ones	Decimal point	Tenths	Hundredths

d.	0.54	0.45

Ones	Decimal point	Tenths	Hundredths
		-	

e. 0.62 0.26

Ones	Decimal point	Tenths	Hundredths
		-	

f. 0.80 0.09

Ones	Decimal point	Tenths	Hundredths
-		_	

g. 0.73 ______ 0.69

Ones	Decimal point	Tenths	Hundredths
_		-	

h. 0.10 ______ 0.1

Ones	Decimal point	Tenths	Hundredths
		_	_
_			

i. 0.49 ______ 0.04

Ones	Decimal point	Tenths	Hundredths
_			-
			2 2 2

j. 0.27______0.7

Ones	Decimal point	Tenths	Hundredths
-			
		-	

3. Use "> or < or =" to compare.

	100	1	
a	0.2	1	0.13
u.	0.2	1	U.13
			-

d. 0.30 0.3

g. 0.18 0.4

		1	
h	0.60	()	0.
	0.00	\	U.

Unit 10	Concent 3
---------	-----------

	-
0.26	0.2
0.20	

4. Compare the numbers using "> or < or = "

e.
$$\frac{200}{100}$$
 0.20

i.
$$\frac{8}{10}$$
 0.79

o. 3 hundredths
$$\bigcirc \frac{30}{100}$$

q. 8.21
$$\bigcirc$$
 8 $\frac{13}{100}$

s.
$$7\frac{2}{100}$$
 3.08

b.
$$3.72 \bigcirc 3\frac{7}{100}$$

d. (1)
$$\frac{134}{100}$$
 (1) 1.03

h.
$$\square$$
 0.23 \bigcirc $\frac{23}{10}$

1. 3.7
$$\bigcirc$$
 3 $\frac{17}{100}$

n.
$$\square \frac{9}{10} \bigcirc 0.89$$

p. (1) 0.42
$$\bigcirc \frac{4}{10}$$

5. Put (1) to the correct statement and (X) for the incorrect one.

c.
$$0.9 = 0.90$$

d.
$$0.03 > 0.3$$

f.
$$4\frac{23}{100} > 4.32$$

g.
$$\frac{500}{100} > 2.79$$

i.
$$50 \text{nes}$$
, $5 \text{Tenths} = 5.5$

6. Circle all the decimal numbers greater than 3.2

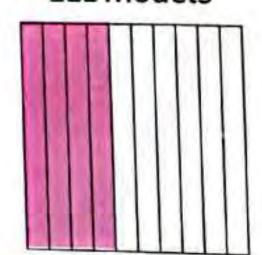
2.3 , 3.52 , 3.20 , 3.3 , 2.99 , 3.02 , 3.9

7. Circle all the decimal numbers smaller than 2.3

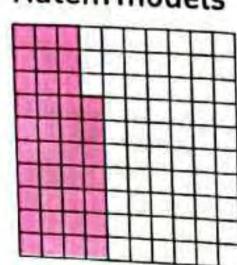
3.2 , 2.1 , 2.30 , 4.01 , 0.7 , 2.99 , 2.03

8. Hatem thinks that his tenth model is bigger than Ezz's model, because Hatem has more colored squares than Ezz, notice the two models and explain if Hatem is right or wrong, then determine the greater decimal giving your reasons.

Ezz models



Hatem models



9. What was the time for the faster runner?



100 Meter DASH		
Runner	Time [in seconds]	
Farida	6.50	
Petra	6.45	

10. Ahmed ran 1.65 kilometers during track practice and Youssef ran 1.68 kilometers.

Who ran the greater distance?



Use the table to complete the chart and answer the questions.









Bag of figs 1.3 Kg

Mangoes 2.01 Kg

Plums 1.21 Kg

Pomegranates 2.25 Kg

Record the mass of each fruit in the place value chart.

Ones	Decimal			
	Decimal	Tenths	Hundredths	
		Decimal	Decimal	

- a. Which item weighs the least?
- b. Which item weighs the most?
- c. Which items weigh more than the Plums?
- d. Which items weigh less than Mango?

Fill in the blanks to make a true statement.

- 12. Which cumin box is greater, first box of mass 0.5 kilogram or second box of
- mass 0.25 kilogram?
- Adam is plotting what he passes on the way to school on the number line. Number the line in tenths using fractions (above the line) and decimals (below the line). Then , plot the following on the number line:

• Omar's house: $\frac{3}{10}$ kilometer.

· Corner Store: 0.8 kilometer.

• Street light : $\frac{1}{10}$ kilometers.

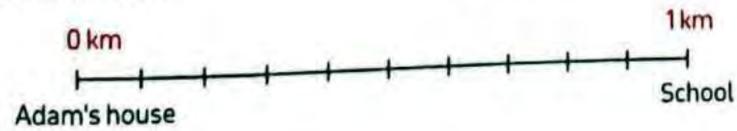
Sara's house: 0.6 kilometer.

A brown house: 0.3 kilometer.

A coffee shop: 0.7 kilometers.

• A yellow house: $\frac{6}{10}$ kilometer.

A park: 1.0 kilometer.



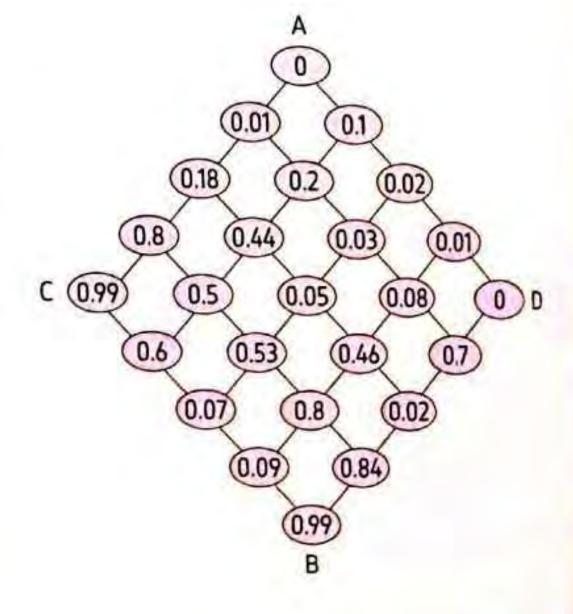
a. Which is further from Adam's house:

Sara's house or Omar's?

- b. When Adam is walking to school, does he pass the coffee shop or the corner store first?
- c. Who lives in the brown house?
- d. Who lives in the yellow house?
- e. How far is the street light from Omar's house?
- Maisa went to the supermarket and saw two bottles of olive oil. The first one contained bliters of olive oil, and the second one contained 0.73 liters of olive oil. Which bottle contained more olive oil? How do you know? Use words, numbers or pictures your thinking.
- 15. Amal ate 0.6 of her food. Her brother ate $\frac{4}{10}$ of his food. Who ate more?
- The distance between Badr home and supermarket is 0.44 kilometer and the distance between Faten home and supermarket is 40/100 kilometer.
 Who is walking greater distance to go a supermarket?

Challenge

- 17. 1. On the worksheet, trace a path through the maze from A to B. For each step, move to a number of greater value.
 - On the worksheet, trace a path through the maze from C to D. For each step, move to a number of lesser value.





Multiple Choice Questions

choose the correct answer.

2. 2.4
$$\bigcirc$$
 2 $\frac{42}{100}$

5. Which of the following is greater than 0.25?

- A. 0.22
- C. 0.4
- D. 15 hundredths
- 6. Which of the following is smaller than $\frac{36}{100}$?
- B. 0.7
- C. 0.53
- D. 0.23

7.
$$3.74 \bigcirc \frac{374}{100}$$

8. 17 hundredths

A. 6

B. 7

C. 8

D. 9

A. >

B. <

11. Which of the following is NOT true?

- A. 7.32 < 7.4
- B. 3.78 > 3.54
- C. 0.01 < 0.1
- D. $\frac{13}{10} > 3.1$

12. Which of the following is true?

- A. 0.53 > 0.55
- B. 0.03 > 0.3
- C. 1.1 > 0.99
- D. 4.8 < 4.75

Lesson 6

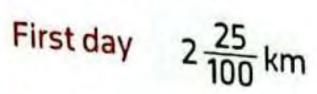
10-11 Check the Denominators 10-12 Putting the Pieces Together

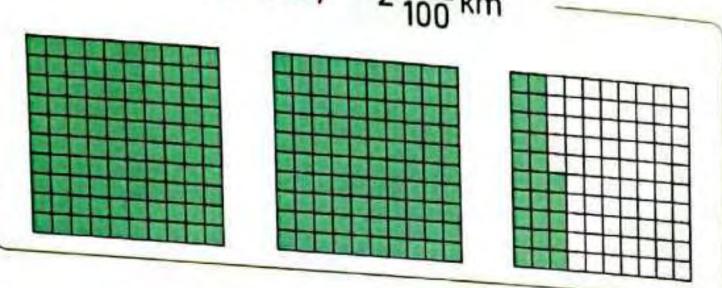
Learn Check the denominators

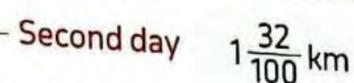
You can use models to add two fractions with related denominators.

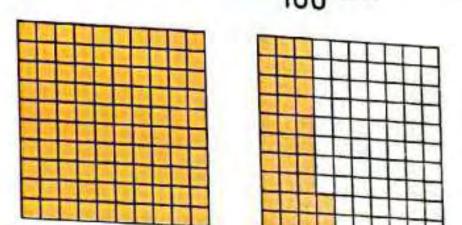
Andy and some friends went cross-country skating, they covered 2 $\frac{25}{100}$ kilometers in the first day and 1 $\frac{32}{100}$ in the second day. What is the distance that they covered in the two days?

You can use models to find the answer.



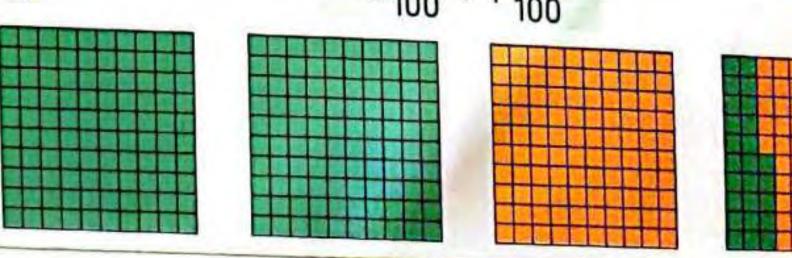






The distance they covered in the two days

$$2\frac{25}{100} + 1\frac{32}{100}$$



So,
$$2\frac{25}{100} + 1\frac{32}{100} = 3\frac{57}{100}$$

Notes for parents:

Help your child use models to add two fractions with related denominators.

b.
$$\frac{2}{10} + \frac{38}{100}$$

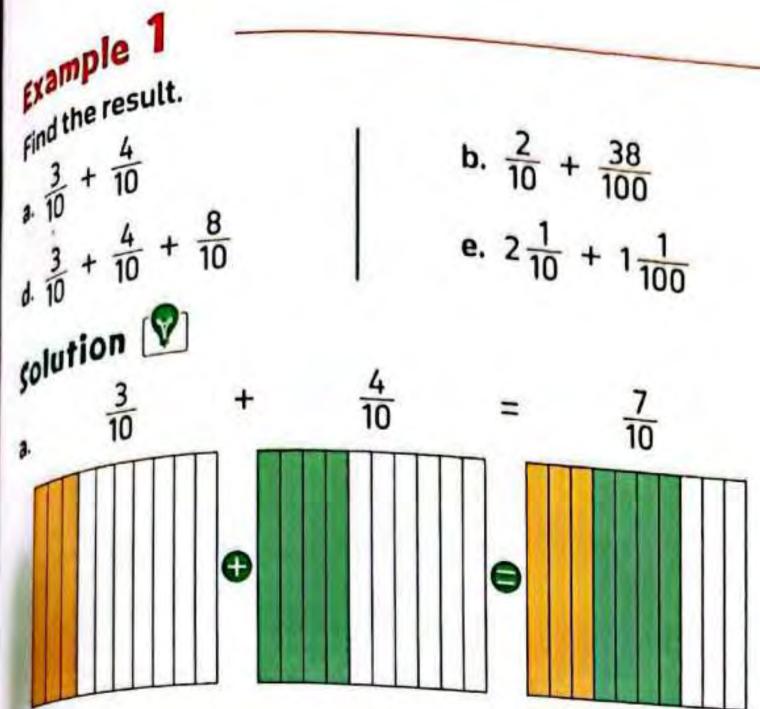
b.
$$\frac{2}{10} + \frac{38}{100}$$

e. $2\frac{1}{10} + 1\frac{1}{100}$

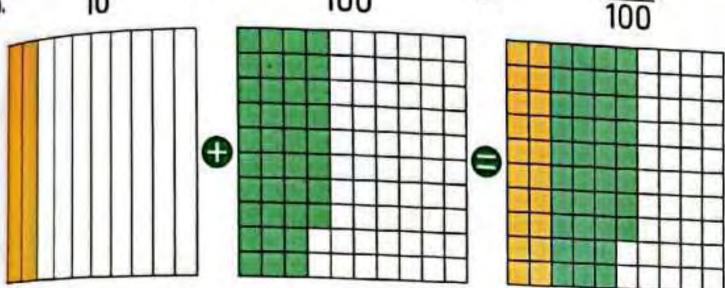
c.
$$\frac{37}{100} + \frac{83}{100}$$

f. $\frac{7}{10} + \frac{87}{100}$

f.
$$\frac{7}{10} + \frac{87}{100}$$



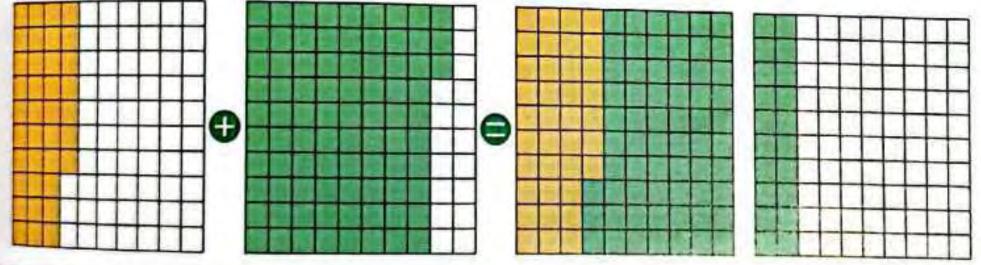
$$\frac{2}{10} + \frac{38}{100} = \frac{58}{100}$$

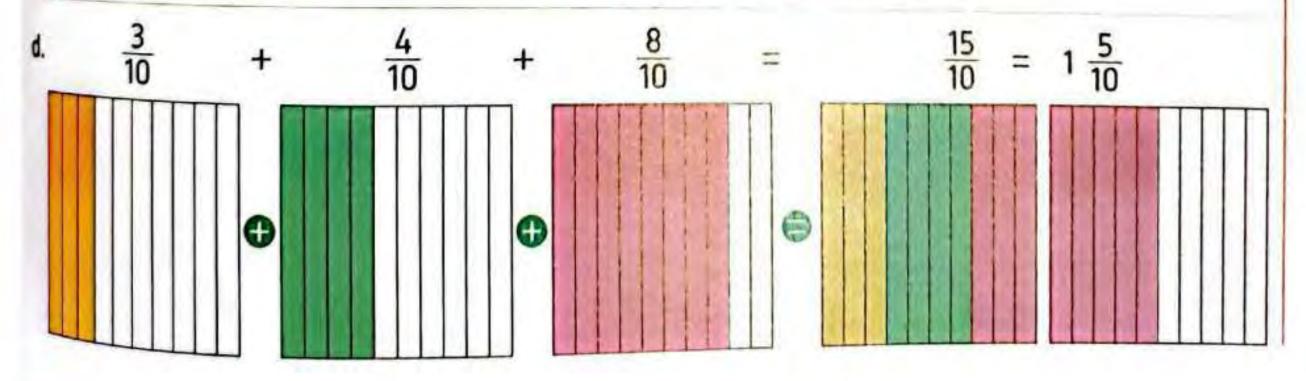


Notice that

$$\frac{2}{10} = \frac{20}{100}$$

$$c \quad \frac{37}{100} \quad + \quad \frac{83}{100} \quad = \quad \frac{120}{100} = 1 \, \frac{20}{100}$$

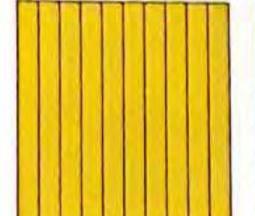


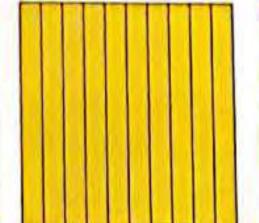


'Remind your child that $\frac{2}{10} = \frac{20}{100}$. (two tenths is equivalent to twenty hundredths)

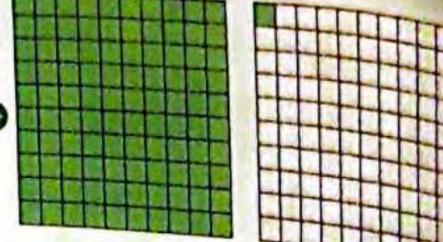
$$2\frac{1}{10}$$

$$=$$
 $3\frac{11}{100}$

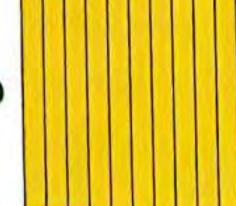


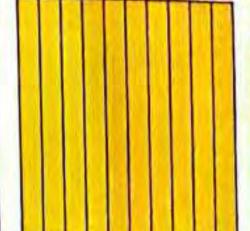


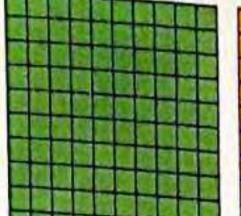


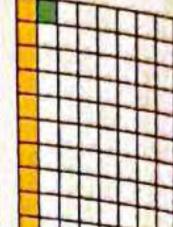


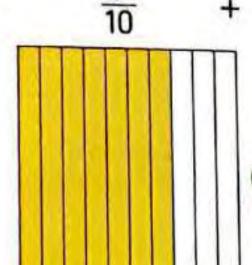


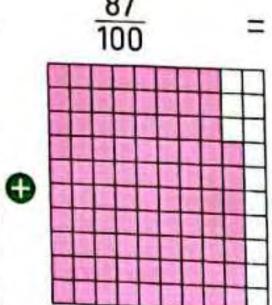




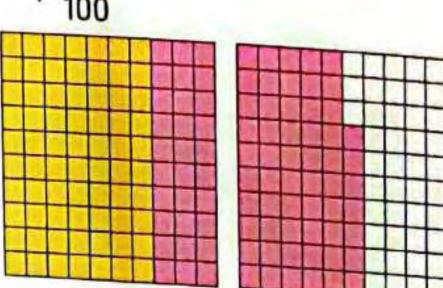








0



Notice that

$$\frac{7}{10} = \frac{70}{100}$$

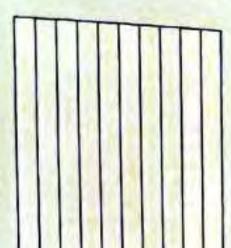
Check your understanding

Find the result using models.

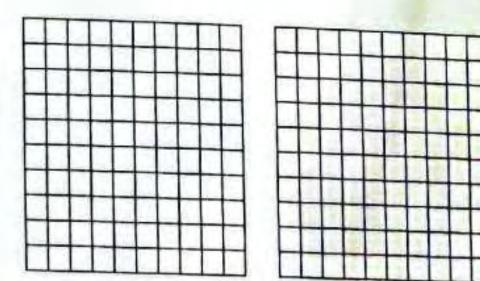
a.
$$\frac{3}{10} + \frac{6}{10}$$

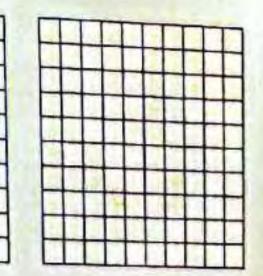






b.
$$\frac{42}{100} + \frac{7}{100}$$





Notes for parents:

• Ask your child how he/she uses models to solve addition problems as $\frac{5}{10} + \frac{30}{100}$



Putting the pieces together

$$\frac{7}{10} + \frac{13}{100} = \frac{70}{100} + \frac{13}{100} = \frac{83}{100}$$

$$\frac{5}{10} + \frac{67}{100} = \frac{50}{100} + \frac{67}{100} = \frac{117}{100} = 1\frac{17}{100}$$



Remember that

- $\frac{7}{10}$ is equivalent to $\frac{70}{100}$
- $\frac{50}{100}$ is equivalent to $\frac{5}{10}$

Example 2

Record equivalent fractions showing your steps.

$$a. \frac{30}{100} = \overline{10}$$

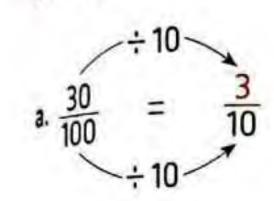
$$a. \frac{30}{100} = \overline{10}$$

$$c. 5\frac{40}{100} = 5\frac{4}{100}$$

b.
$$\frac{7}{10} = \frac{1}{100}$$

d.
$$\frac{700}{100} = \frac{70}{100}$$

solution [



"by dividing by 10 the quotient is 3"

"by multiplying by 10 the result is 70"

"by dividing by 10 the quotient is 10"

"by dividing by 10 the quotient is 10"

telp your child express a fraction with denominator 10 as an equivalent fraction with denominator 100

Example 3

Complete to find the result.

a.
$$\frac{34}{100} + \frac{5}{10} = \frac{34}{100} + \frac{34}{100} = \frac{34}{100}$$

b.
$$3\frac{7}{10} + 2\frac{12}{100} = 3\frac{1}{100} + 2\frac{12}{100} = 5\frac{1}{100}$$

Solution [V]

a.
$$\frac{34}{100} + \frac{5}{10} = \frac{34}{100} + \frac{50}{100} = \frac{84}{100}$$

b.
$$3\frac{7}{10} + 2\frac{12}{100} = 3\frac{70}{100} + 2\frac{12}{100} = 5\frac{82}{100}$$



Example 4

Find the result.

a.
$$\frac{3}{10} + \frac{50}{100}$$

b.
$$3\frac{2}{10} + 4\frac{3}{100}$$

b.
$$3\frac{2}{10} + 4\frac{3}{100}$$
 c. $2\frac{5}{10} + \frac{34}{100} + \frac{61}{100}$

Solution [V]

a.
$$\frac{3}{10} + \frac{50}{100} = \frac{30}{100} + \frac{50}{100} = \frac{80}{100}$$

Another Solution:

$$\frac{3}{10} + \frac{50}{100} = \frac{3}{10} + \frac{5}{10} = \frac{8}{10}$$

Note that

the two results are equal $\frac{80}{100} = \frac{8}{10}$

b.
$$3\frac{2}{10} + 4\frac{3}{100} = 3\frac{20}{100} + 4\frac{3}{100} = 7\frac{23}{100}$$

c.
$$2\frac{5}{10} + \frac{34}{100} + \frac{61}{100} = 2\frac{50}{100} + \frac{34}{100} + \frac{61}{100} = 2\frac{145}{100} = 3\frac{45}{100}$$

check your understanding

Find the result.

a.
$$\frac{1}{10} + \frac{2}{100} = -$$

b.
$$3\frac{54}{100} + \frac{6}{10} =$$

c.
$$\frac{7}{10} + \frac{15}{100} + \frac{22}{100} =$$

d.
$$2\frac{2}{10} + 4\frac{71}{100} = -$$

Notes for parents:

 Help your child write an equivalent fraction of denominator 100 to a fraction of denominator 10 and use this technique to add two fractions.

10-11 Check the Denominators

10-12 Putting the Pieces Together

REMEMBER

UNDERSTAND

O APPLY

PROBLEM SOLVING

From the school book

1. Write the numerator or denominator to form equivalent fraction.

a.
$$\frac{6}{10} = \frac{100}{100}$$

$$c.\frac{4}{10} = \frac{40}{}$$

e.
$$\frac{70}{100} = \frac{7}{2}$$

$$g. \frac{80}{100} = \frac{8}{-}$$

b.
$$\frac{3}{10} = \frac{100}{100}$$

d.
$$\frac{20}{100} = \frac{2}{}$$

f.
$$\frac{900}{100} = \frac{90}{100}$$

h.
$$\frac{50}{100} = \frac{1}{10}$$

2. Make equivalent fractions and record how you increased or decreased the numerator and the denominator.

a.
$$\frac{30}{100} = \frac{-}{10}$$

c.
$$\frac{2}{10} = \frac{-}{100}$$

e.
$$\frac{50}{100} = \frac{-}{10}$$

g.
$$\frac{100}{100} = \frac{-}{10}$$

i.
$$\frac{600}{100} = \frac{60}{100}$$

b.
$$\frac{4}{10} = \frac{40}{-}$$

d.
$$\frac{90}{100} = \frac{-}{10}$$

f.
$$1\frac{70}{100} = 1\frac{7}{100}$$

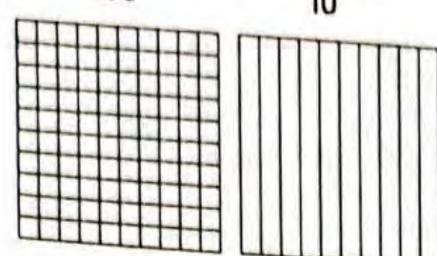
h.
$$\frac{40}{100} = \frac{-}{100}$$

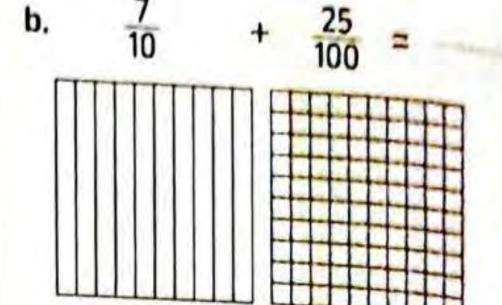
j.
$$2\frac{8}{10} = 2\frac{-}{100}$$

O MANA

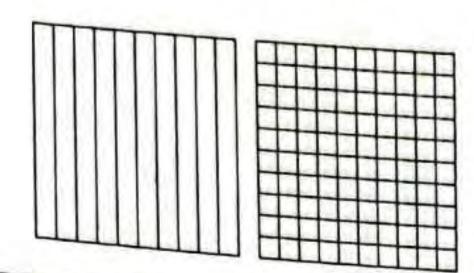
3. Use models to find the result.

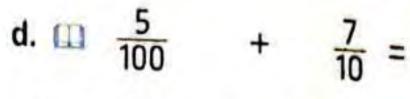
a. (1) $\frac{15}{100}$ + $\frac{3}{10}$ =

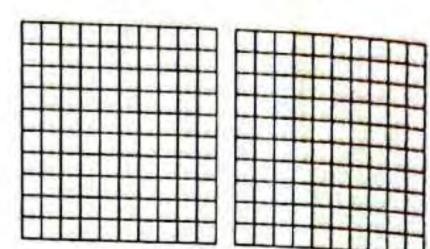




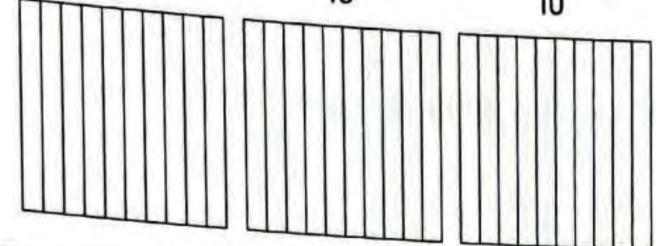
c. $\Box \frac{2}{10} + \frac{30}{100} = -$





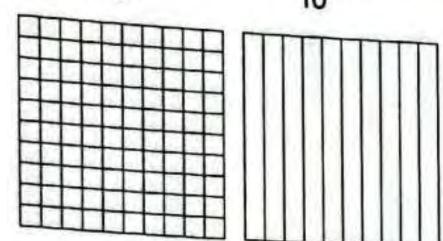


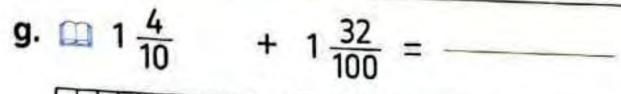
e. $\frac{2}{10}$ + $\frac{6}{10}$ + $\frac{4}{10}$ = -

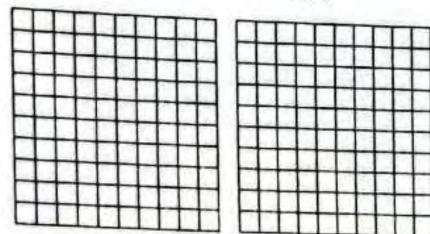


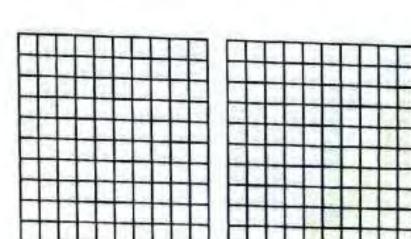


f.
$$\square$$
 $\frac{23}{100}$ + $\frac{7}{10}$ = -

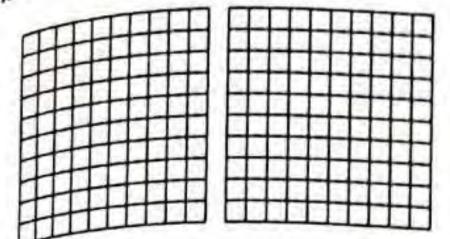


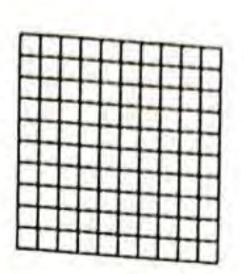




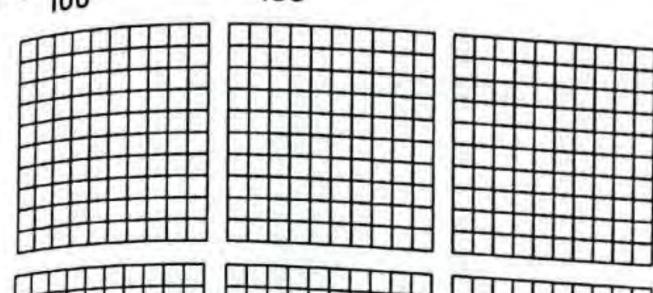


$$h = 1\frac{5}{10} + \frac{30}{100} = -$$

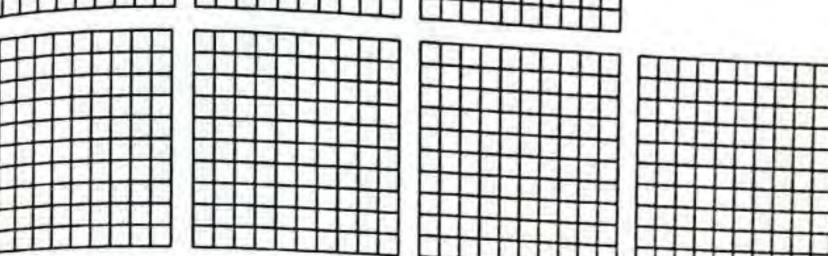




$$\frac{75}{1.2100} + 3\frac{32}{100} =$$







4. Complete to find the result.

a.
$$\Box \frac{6}{10} + \frac{23}{100} = \frac{-}{100} + \frac{23}{100} = \frac{-}{100}$$

$$c \frac{3}{10} + \frac{8}{100} = \frac{-}{100} + \frac{8}{100} = \frac{-}{-}$$

e.
$$\frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{-}{100} = \frac{-}{-}$$

b.
$$2\frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{1}{10} = \frac{1}{10}$$

d.
$$\frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{1}{100} = \frac{1}{100}$$

f.
$$\frac{6}{10} + \frac{82}{100} = \frac{}{100} + \frac{82}{100} = \frac{}{}$$

5. Find the result of each of the following.

a.
$$\frac{7}{10} + \frac{25}{100} = -$$

c.
$$\frac{32}{100} + \frac{31}{100} = -$$

e.
$$\frac{3}{10} + \frac{70}{100} =$$

$$9. \ \frac{6}{10} + \frac{40}{100} = -$$

b.
$$\frac{41}{100} + \frac{5}{10} = -$$

d.
$$\frac{72}{100} + \frac{54}{100} = -$$

f.
$$\frac{40}{100} + \frac{5}{10} = -$$

h.
$$\frac{20}{100} + \frac{8}{10} = -$$

i.
$$\frac{7}{10} + \frac{3}{10} + \frac{1}{100} =$$

k.
$$2\frac{32}{100} + 5\frac{6}{10} =$$

m.
$$\frac{3}{10} + \frac{3}{100} = -$$

o.
$$12\frac{1}{10} + 4\frac{37}{100} =$$

$$j. \ \frac{2}{10} + \frac{24}{100} + \frac{6}{10} =$$

$$1. \ \frac{73}{100} + 2 \frac{2}{10} =$$

n.
$$2\frac{3}{10} + 4\frac{5}{100} = -$$

p.
$$4\frac{2}{10} + 5\frac{2}{100} + 2\frac{2}{10} =$$

6. Put (1) to the correct statement and (X) to the incorrect statement.

a.
$$\frac{3}{10} + \frac{7}{10} = \frac{10}{20}$$

b.
$$\frac{2}{10} + \frac{5}{100} = \frac{7}{100}$$

c.
$$\frac{3}{100} + \frac{2}{10} = \frac{32}{100}$$

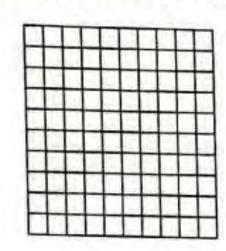
() d.
$$\frac{35}{100} + \frac{4}{10} = \frac{75}{100}$$

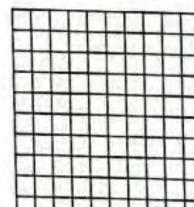
e.
$$2\frac{2}{10} + 3\frac{14}{100} = 5\frac{34}{100}$$
 [] $f. \frac{17}{100} + 0.5 = \frac{22}{100}$

$$f. \ \frac{17}{100} + 0.5 = \frac{22}{100}$$

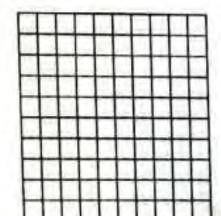
7. \square Abeer had $\frac{8}{10}$ of a meter of fabric. She went to the store and bought another $\frac{25}{100}$ of a meter. How much fabric did she have in all? Fill in the models to show each fraction and then solve.

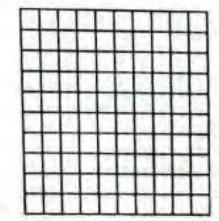






8. \square Diaa had a water bottle with $\frac{5}{10}$ liter in it. He added it to another bottle that had $\frac{65}{100}$ of a liter. Does he have more than 1 liter? How do you know? Use the models to explain.





9. Basma made a necklace and a bracelet. She used $\frac{6}{10}$ of a meter of string for the necklace and $\frac{25}{100}$ of a meter of string for the bracelet. How much string did she use in all?

Write the fraction in simplest form.

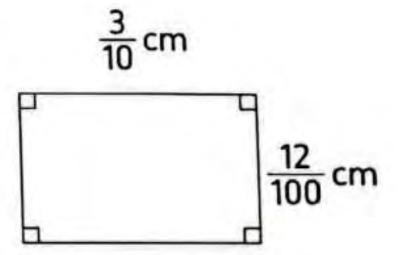
10. Ali has a vessel of capacity one liter filled by $\frac{2}{10}$, he adds $\frac{60}{100}$ liter to the vessel. What is the fraction that represents the empty part of the vessel by tenths and hundredths?

11. Laila read $\frac{3}{10}$ of her book on Saturday and read $\frac{65}{100}$ of it on Sunday.

What is the fraction that represents all of Laila read?

Challenge

12. Find the perimeter of the opposite rectangle.





Multiple Choice Questions

Choose the correct answer.

$$\frac{3}{10} + \frac{17}{100} =$$

A.
$$\frac{20}{10}$$

B.
$$\frac{20}{100}$$

c.
$$\frac{47}{100}$$

D.
$$\frac{75}{100}$$

2.
$$\frac{21}{100} + \frac{7}{10}$$
 $\frac{71}{100} + \frac{2}{10}$
A. > B. <

3.
$$\frac{39}{100} + \frac{41}{100} =$$

B.
$$\frac{70}{100}$$

c.
$$\frac{7}{10}$$

D.
$$\frac{80}{10}$$

4. Which of the following is true?

A.
$$\frac{2}{10} + \frac{6}{10} = \frac{8}{20}$$

C.
$$4\frac{2}{100} + 7\frac{3}{10} = 11\frac{5}{100}$$

B.
$$2\frac{3}{10} + 3\frac{22}{100} = 5\frac{52}{100}$$

D.
$$9\frac{18}{100} + 9\frac{1}{10} = 18\frac{19}{100}$$

$$\frac{5}{10} + \frac{8}{10} + \frac{9}{10} =$$

A.
$$2\frac{4}{100}$$

B.
$$\frac{24}{100}$$

$$\frac{6.}{10} + \frac{3}{10} = \frac{-}{100}$$

c.
$$\frac{23}{10}$$

D.
$$2\frac{4}{10}$$

7.
$$3\frac{17}{100} + 2\frac{5}{10} =$$

A.
$$5\frac{67}{100}$$
 B. $5\frac{22}{10}$

C. $5\frac{22}{100}$

B.
$$5\frac{22}{10}$$

D.
$$6\frac{22}{100}$$

8.
$$\frac{75}{100} + \frac{1}{10} < -$$

A.
$$\frac{85}{100}$$

B.
$$\frac{9}{10}$$

c.
$$\frac{83}{100}$$

D.
$$\frac{79}{100}$$

$$\frac{9}{10} >$$

A.
$$\frac{15}{100} + \frac{1}{10}$$

C.
$$\frac{18}{100} + \frac{12}{100}$$

B.
$$\frac{2}{10} + \frac{1}{10}$$

D.
$$\frac{5}{10} + \frac{71}{100}$$

Unit Ten Assessments



Model

1

1. Choose the correct answer.

- a. The value of the digit 3 in the number 15.23 is
 - A. 0.03
- B. 0.30
- C. 3
- D. 30

- b. 0.07 = as a fraction.
 - A. 7
- B. $\frac{7}{100}$
- c. $\frac{70}{10}$
- D. $\frac{70}{100}$

- c. 1.52 1.6
 - A. >

- B. <
- C. =

2. complete.

 $\frac{5}{10} + \frac{25}{100} =$

- c. 5.7 = ______ tenths.
- 3. Match.
 - a.
- 5.2
- b. 5+0.1+0.02
- c. $2\frac{1}{10} + 3\frac{1}{100}$
- d. 8.1
- e. 8 3 10

1. $5\frac{11}{100}$

b. 3.16 in word form is

- 2. $5\frac{2}{10}$
- 3. 81 tenths
- 4. 5.12
- 5. $3\frac{12}{100} + 5\frac{18}{100}$
- 4. Put (\checkmark) to the correct statement and (X) to the incorrect one.
 - a. 5 ones and 3 hundredths = 5.3

b. 1.05 > 89 hundredths

c. $4\frac{1}{10} + 3\frac{87}{100} = 7\frac{88}{100}$

- ()
- Mohamed was training for the race. On Sunday, he ran for $\frac{7}{10}$ km. On Monday, he ran for $\frac{36}{100}$ km. What distance did he run in all ?

Model

2

1. Choose the correct answer.

A.
$$\frac{70}{10}$$

B.
$$\frac{7}{100}$$

c.
$$\frac{7}{10}$$

c.
$$\frac{35}{100} + \frac{2}{10} <$$

A.
$$\frac{7}{10}$$

B.
$$\frac{55}{100}$$

c.
$$\frac{3}{10}$$

D.
$$\frac{49}{100}$$

2. Complete.

a. The place value of the digit 3 in the number 54.32 is

3. Match.

a.
$$5\frac{70}{100} = 5\frac{}{10}$$

c.
$$52\frac{3}{10}$$

e.
$$\frac{3}{10} + \frac{4}{100}$$

1.
$$\frac{2}{10} + \frac{14}{100}$$

4. Put (1) to the correct statement and (X) to the incorrect one.

a.
$$0.08 = 0.8$$

c.
$$2\frac{1}{10} + 5\frac{1}{100} = 7\frac{2}{100}$$

5. Mostafa ate 0.7 of his food. His brother ate $\frac{25}{100}$ of his food. Who ate more?

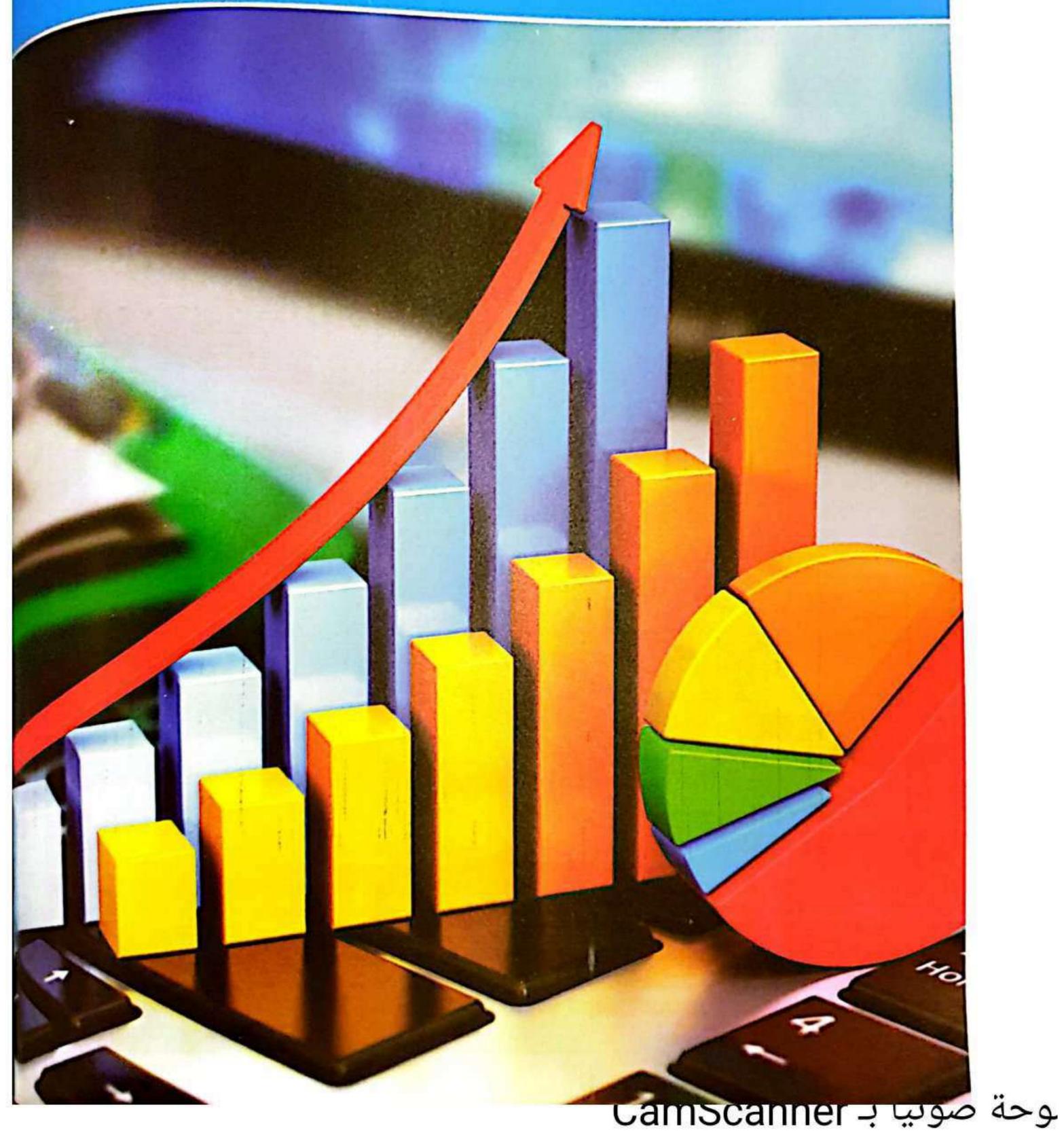
Theme 3

Fractions, Decimals, and Proportional Relationships

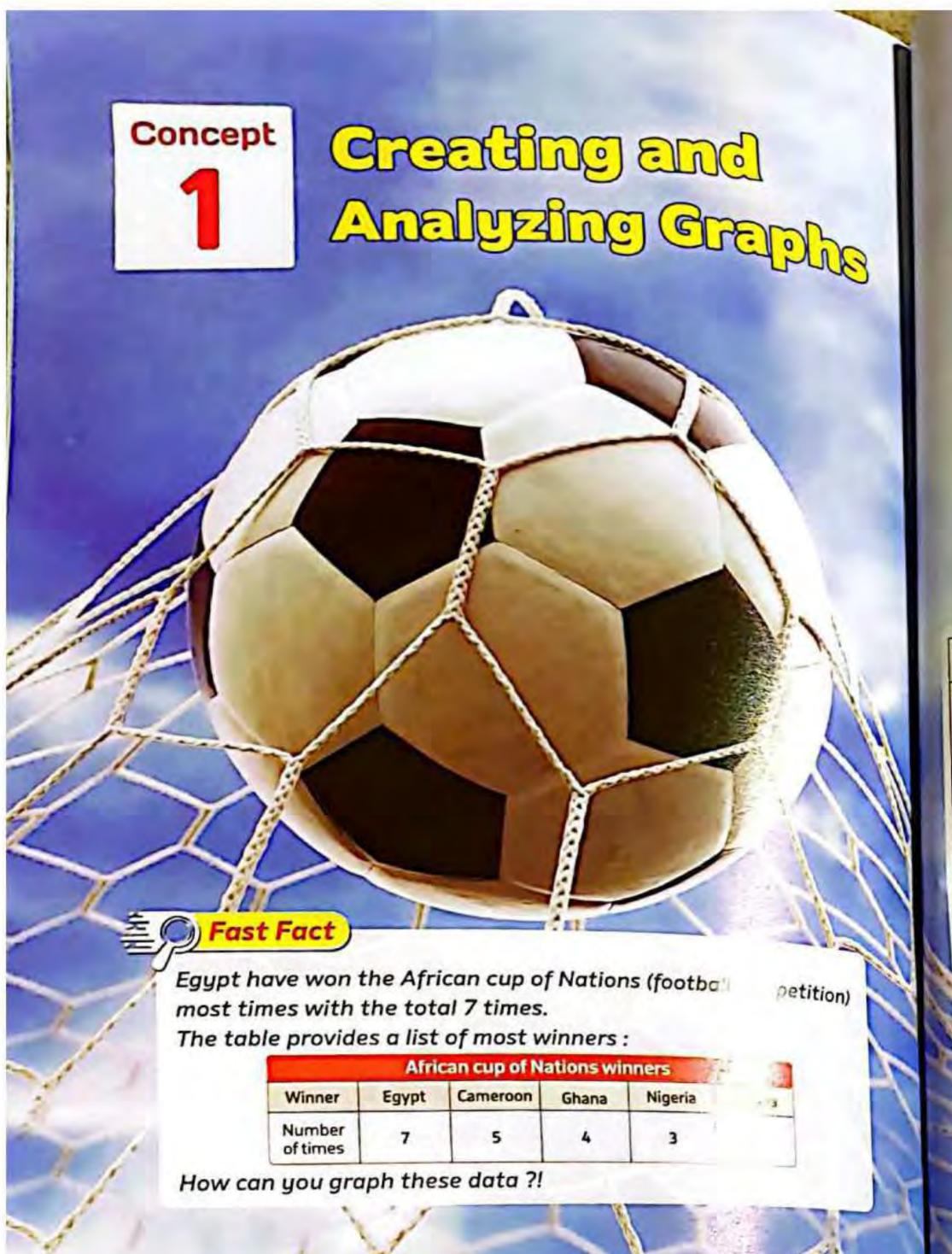
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Data with Fractions

» Concept 1: Creating and Analyzing Graphs



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Concept Overview

In concept 1:

Creating and Analyzing Graphs, students organize, create, and analyze bar graphs, double bar graphs, and line plots. Bar graphs and line plots are reviewed from previous grades. Students explore double bar graphs and line plots with fractional values. They create graphs from tables and charts, generate and answer questions about various graphs, and determine which graph is appropriate for different data sets. The concept wraps up with students collecting data from their peers and determining how to represent the data in a graph. They write questions about their own graphs and answer questions posed by partners about their graphs.

No.	Lesson Name	Vocabulary Terms	Learning Objectives
esson 1	11-1 Show Me the Data	Axis Bar graph Categories Data Double bar graph Horizontal Intervals Key Scale Vertical	Students will distinguish between different types of graphs. Students will explain the difference between bar graphs and double bar graphs. Students will explain when it is appropriate to use double bar graphs.
Lesson 2 11-2 Plotting Along		Frequency Horizontal	 Students will explain why data might include fractions. Students will construct a line plot using data with fractions. Students will analyze a line plot using data with fractions.
	11-3 Breaking the Bar	Increments Scale	 Students will construct a bar graph using data with fractions. Students will analyze a bar graph containing data with fractions. Students will construct a double bar graph using data with fractions. Students will analyze a bar graph containing data with fractions.
Lesson	3 11-4 Data About Us	Review Av shulary as needed.	 Students will select the most appropriate graph to display a set of data. Students will construct an appropriate graph to display a set of data. Students will analyze data in graphs.
	11-5 Graphing the Class	Ference of the second	 Students will ask and answer questions about fractional data in a graph.

Lesson

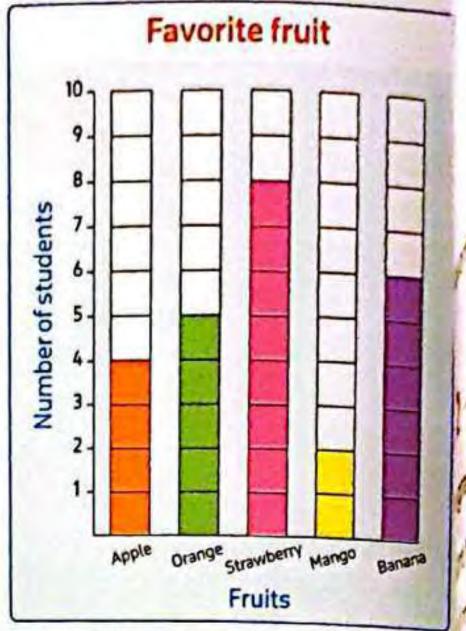
1

11-1 Show Me the Data

Remember

- You have learned before that data can be represented by more than one way.
- These data about student's favorite fruit.
 Sandra represented these data
 by a bar graph.

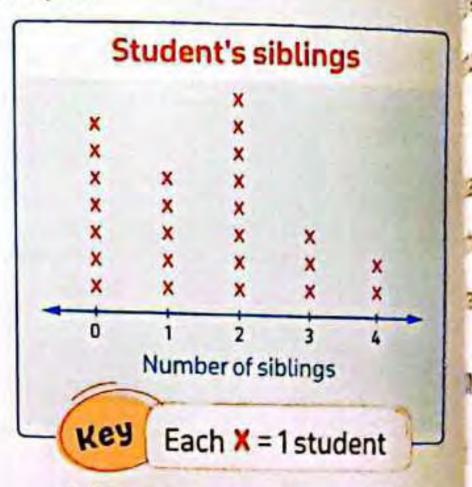
Favorite fruit		
Fruit	Number	
Apple	4	
Orange	5	
Strawberry	8	
Mango	2	
Banana	6	



A bar graph is used to compare data.

- These data about siblings (brothers and sisters)
- Amgad represented these data by a line plot.

Student's siblings		
Siblings	Number	
0	7	
1	5	
2	8	
3	3	
4	2	



A line plot compares data by showing clusters of information.

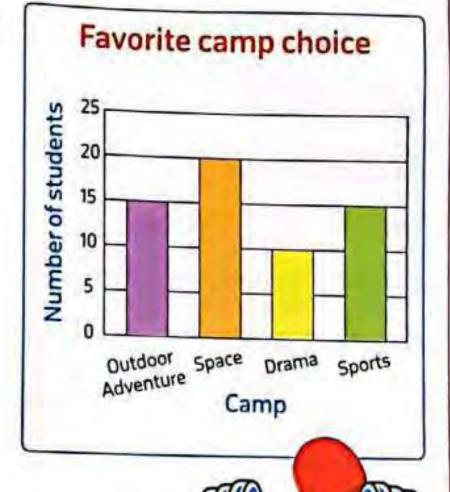
Notes for parents:

· Remind your child how he/she can represent data by a bar graph and a line plot.

Example 1

Observe the graph and answer the questions given below.

- a. Which camp do most students prefer?
- b. Which camp was chosen by the fewest students?
- c. How many students chose space camp?
- d. How many more students chose space camp than sports camp?
- e. Which two camps were chosen by the same number of students?



solution [V]

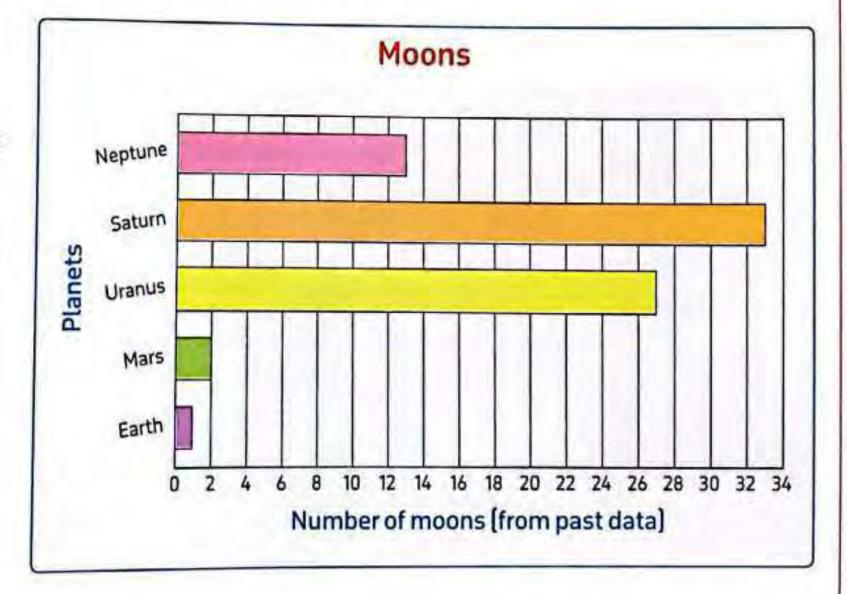
- a. Space.
- c. 20
- e. Outdoor adventure and sports.

- b. Drama.
- d. 20 15 = 5

Example 2

Observe the graph and answer the questions given below.

- a. Which plant has the lowest number of moons?
- b. What is the number of moons around the Mars planet?
- c. Which planet has less moons than Neptune but more than Earth?
- d. Which planet has more moons than Mars but fewer than Uranus?



Solution [7]

- a. Earth.
- c. Mars

- b. 2
- d. Neptune.

^{&#}x27;Ask your child to review the elements of the bar graph and to point to each part.

Learn Double bar graph

How do you read a bar graph?

A bar graph uses bars to show data that can be counted.

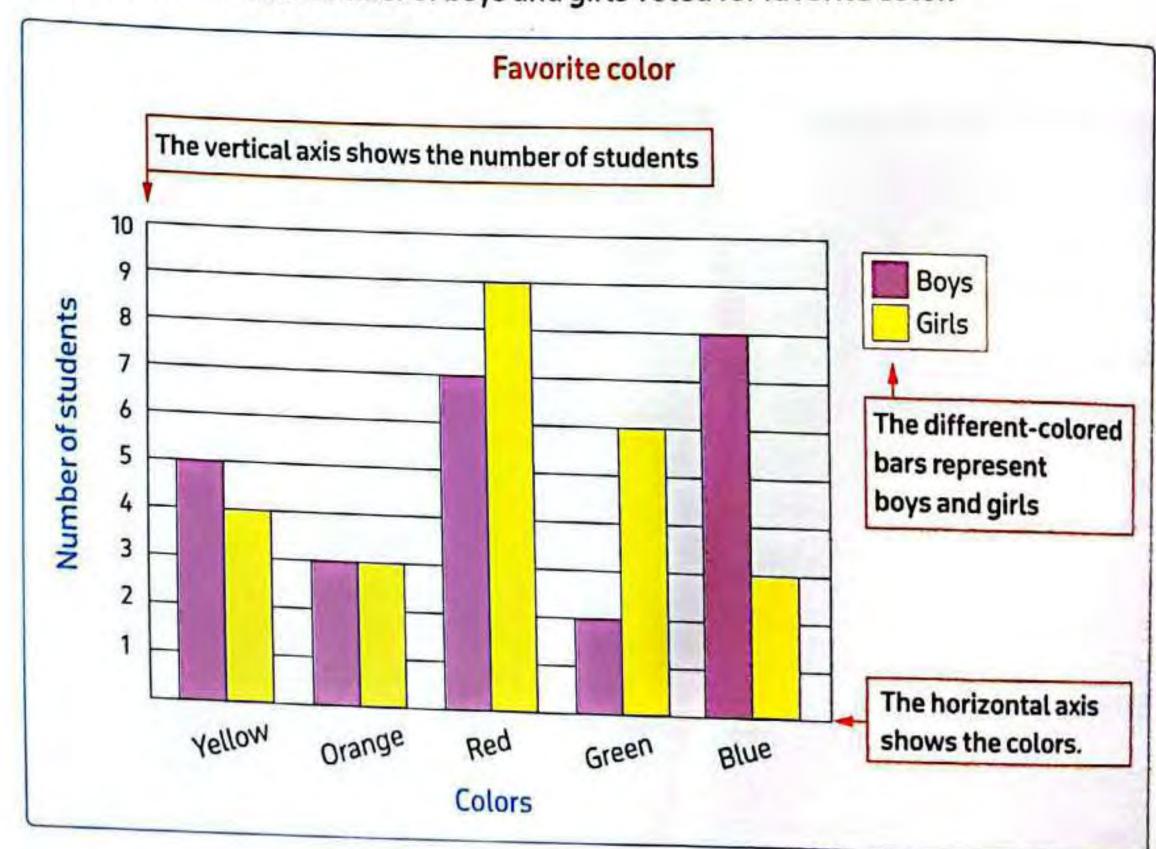
A double bar graph uses two different-colored or shaded bars to compare two similar sets of data that can be counted.

The following survey shows student's favorite color for 25 boys and 25 girls.

The data is organized in a table.

Favorite color			
Colors	Boys	Girls	
Yellow	5	4	
Orange	3	3	
Red	7	9	
Green	2	6	
Blue	8	3	

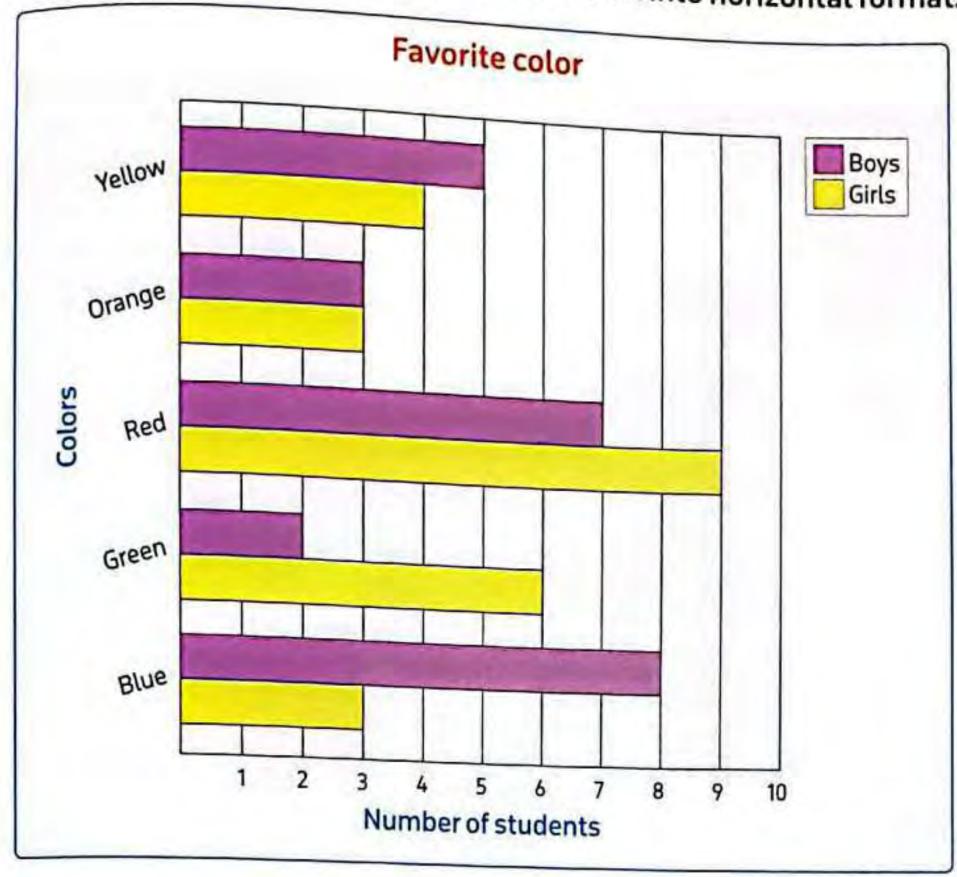
The graph below shows number of boys and girls voted for favorite color.



Notes for parents:

[·] Let your child explain the difference between bar graphs and double bar graphs.

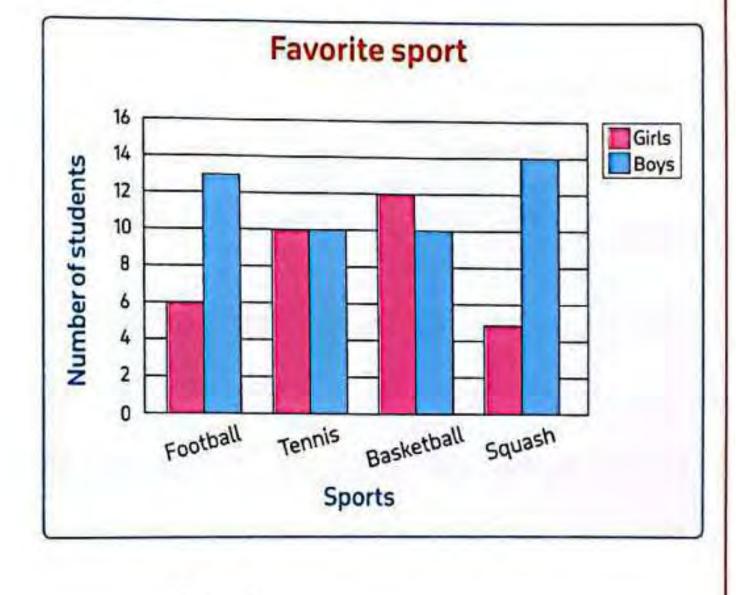
The same data can be converted from the vertical format into horizontal format.



Example 3

Observe the given graph and answer the questions below.

- a. Which is the most preferred sport of the girls?
- b. Which is the most preferred sport of the boys?
- c. How many girls like squash?
- d. Which sport is liked by 10 girls?
- e. How many students like basketball?



Solution [9]

a. Basketball.

b. Squash.

d. Tennis

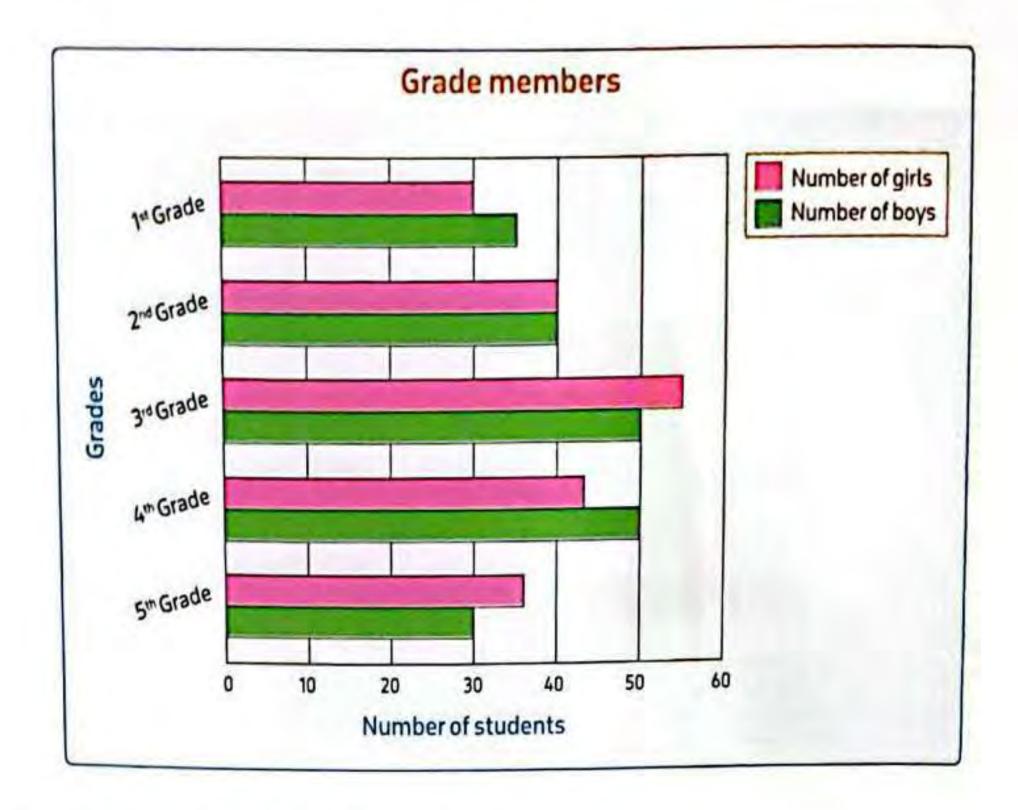
e 22

c. 5

'Let your child explain when it is appropriate to use double bar graphs.

Example 4

Observe the graph and answer the questions given below.



- a. What is the number of boys in 4th grade?
- b. What is the number of members in 3rd grade?
- c. What is the difference in the number of boys in 4th grade and 2nd grade?
- d. Which grade has the lowest number of boys?
- e. Which grade has the highest number of girls?

Solution [V]

- a. The bar for the 4th grade shows the number of boys 50
- **b.** The number of members in 3^{rd} grade = number of boys + number of girls = 50 + 55 = 105
- c. Look at the two bars for boys in 4^{th} grade and 2^{nd} grade. Difference = 50 40 = 10
- d. 5th grade has the lowest number of boys.
- e. 3rd grade has the highest number of girls.

Notes for parents:

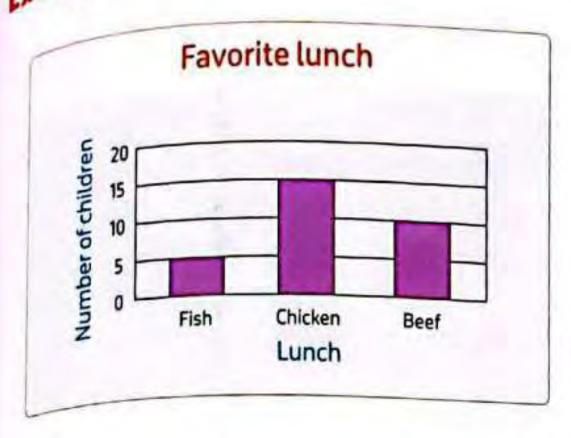
Help your child answer the questions about data.

Learn

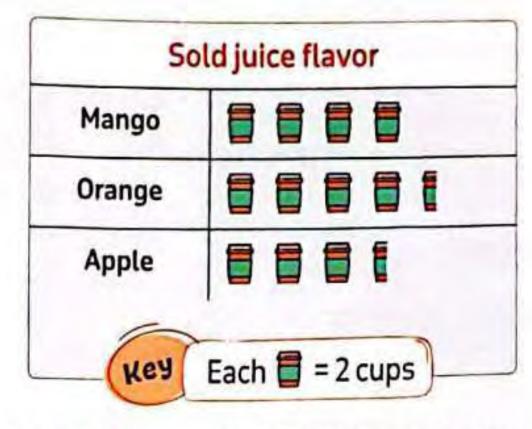
Choose an appropriate graph

The type of graph used to display data depends upon the type of information you want to show.

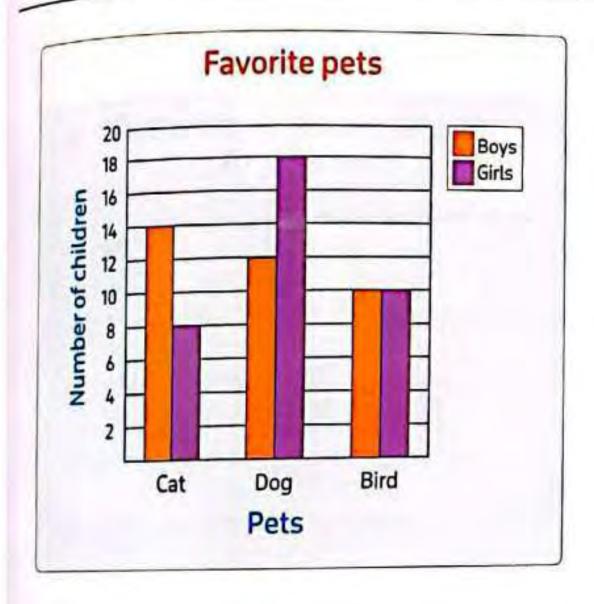
Examples



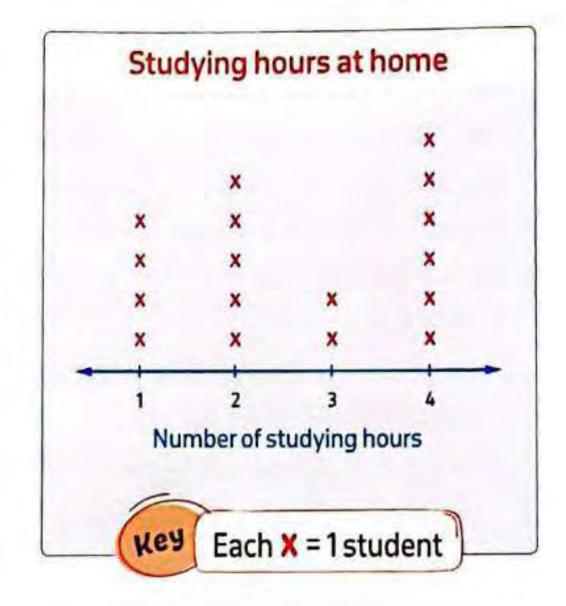
Use a bar graph to show and compare data about different categories, or groups.



Use a pictograph to show and compare data about different categories, or groups.



Use a double bar graph to show and compare two similar sets of data using two-different colored bars.



Use a line plot to show the frequency of the data along a number line.

^{*}Help your child distinguish between different types of graphs.

Example 5

Choose the best answer.

a. Sara collected a data about the number of read books each child read between two months May and June.

Which type of graph would best to display these data?

- A. Bar graph
- B. Pictograph
- C. Double bar graph
- D. Line plot
- b. Amir collected data about the number of family member for each child at his class. Which type of graph would best to display these data?
 - A. Bar graph
- B. Pictograph
- C. Double bar graph
- D. Line plot

Solution [V]



a. Double bar graph

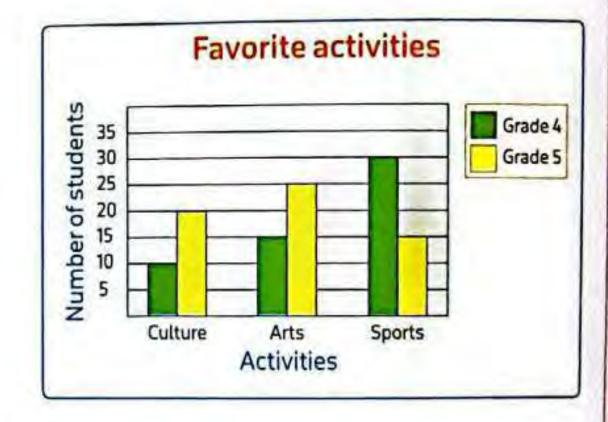
b. Line plot



your understanding

- 1. Which type of graph would best to represent the highest and the lowest temperatures in Cairo for 5 days?
 - A. Bar graph
- B. Pictograph
- C. Double bar graph
- D. Line plot

- 2. The following double bar graph shows the favorite activities for grade 4 and grade 5 in a primary school. Notice the double bar graph and answer the questions.
 - a. Which is the most preferred activity of grade 4?
 - b. Which is the most preferred activity of grade 5?
 - c. How many students chose arts in grade 5?
 - d. Which activity is chosen by 40 students?
 - e. Calculate the difference between the number of students between grade 4 and grade 5.



Notes for parents:

· Make sure that your child understand that double bar graphs are used to make comparisons between and among sets of data.

Exercise 23

11-1 Show Me the Data

REMEMBER

OUNDERSTAND

O APPLY

ROBLEM SOLVING

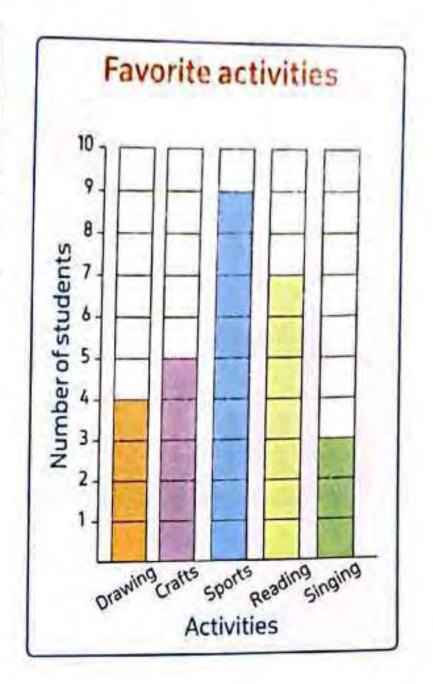
From the school book

The following graph shows student's votes for their favorite activities.

complete the following table. Then answer the questions.

	Favorite activities				
Activity	Drawing	Crafts	Sports	Reading	Singing
Number					

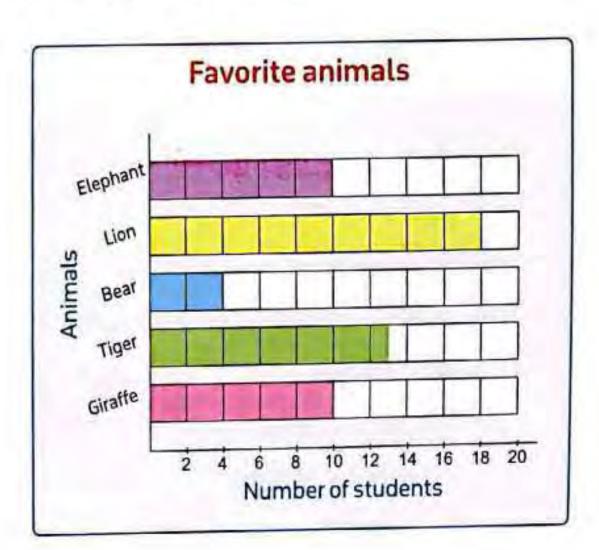
- a. Which activity do most students prefer?
- b. Which activity was chosen by the fewest students?
- c. How many students chose reading?
- d. How many more students chose sports than crafts?
- e. Which two activities their sum equals the number of students chose sports?



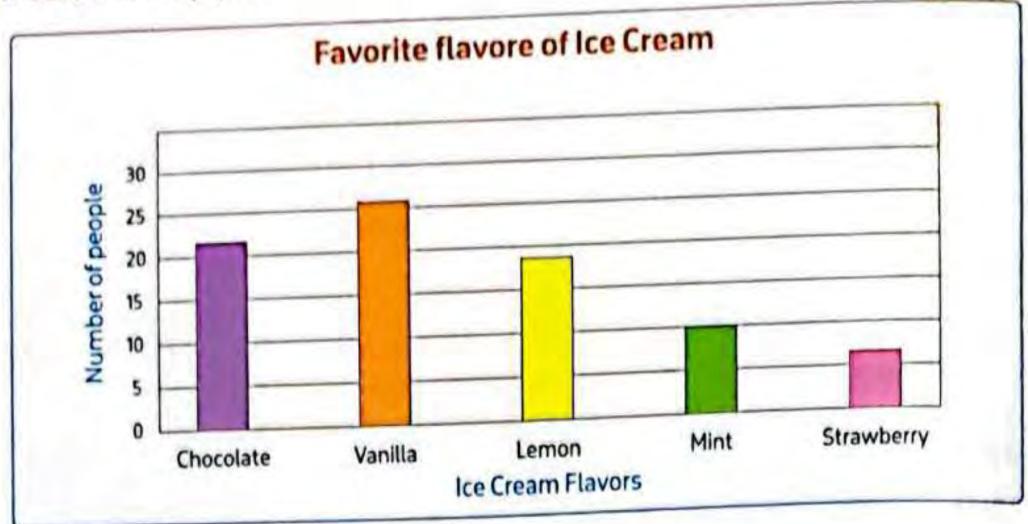
2. The following graph shows student's votes for their favorite animal.

Answer the following questions.

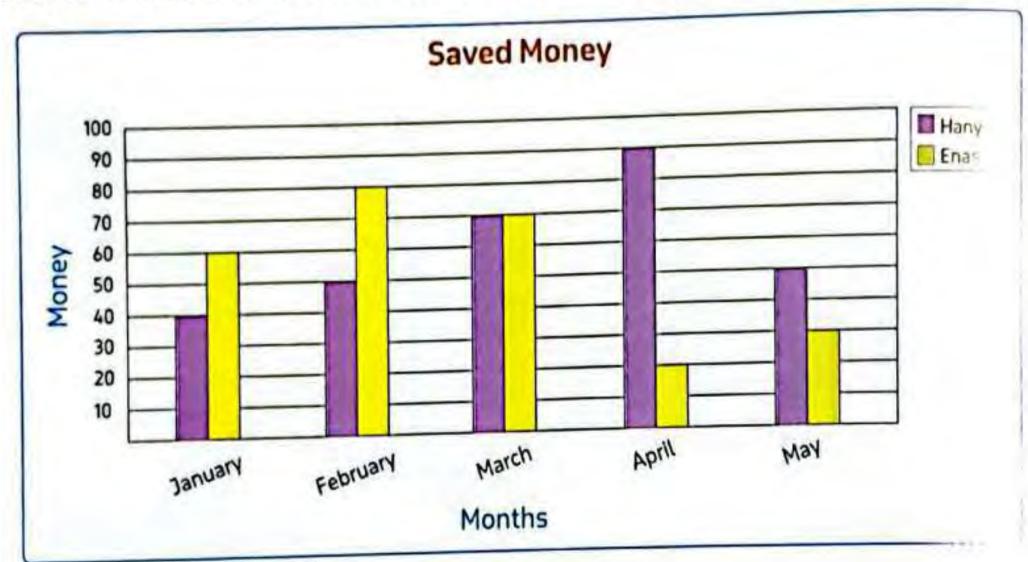
- a. Which animal is liked the most?
- b. Which animal is liked the least?
- c. How many students liked tiger?
- d. Which two animals were liked by the same number of students?
- e. How many more students liked tiger than bear?



3. Double the Data Review the elements of bar graphs with your teacher. Use the bar graph below to help you.



- Record two questions that could be answered by this graph.
- 4. The following double bar graph shows the sum of money in pounds which Hany and
 Enas saved in 5 consecutive months. Observe the graph, then answer the questions.

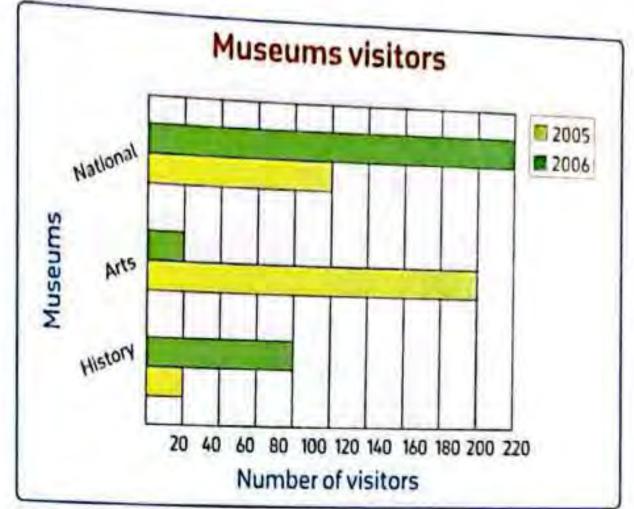


- a. What is the highest amount did Hany save? Which month?
- b. What is the highest amount did Enas save? Which month?
- c. What is the total saved amount for February?
- d. What is the total amount did Hany save in all?
- e. What is the total amount did Enas save in all?
- f. Which month did Hany and Enas save the same amount?
- g. Who saved the most? Who saved the least?
- h. What is the difference between their amount in April?

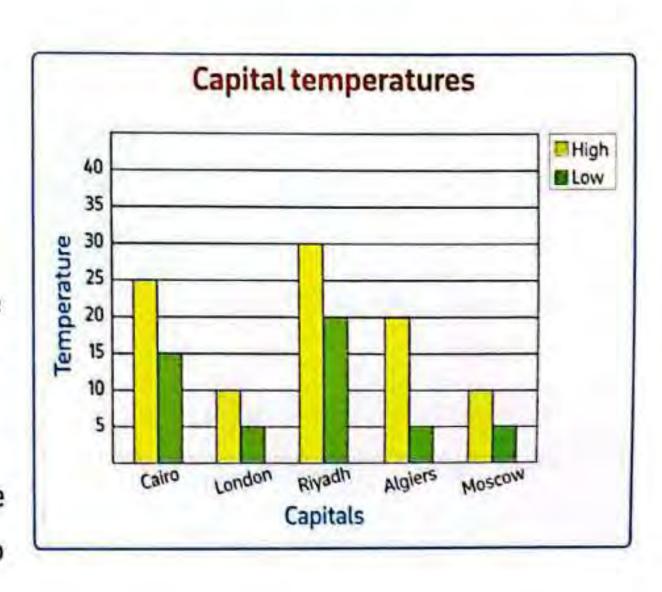
The following double bar graph shows the number of visitors of three museums in 2005 and 2006. Observe the graph and answer the questions.

a. Which museum has the most number of visitors? Which year?

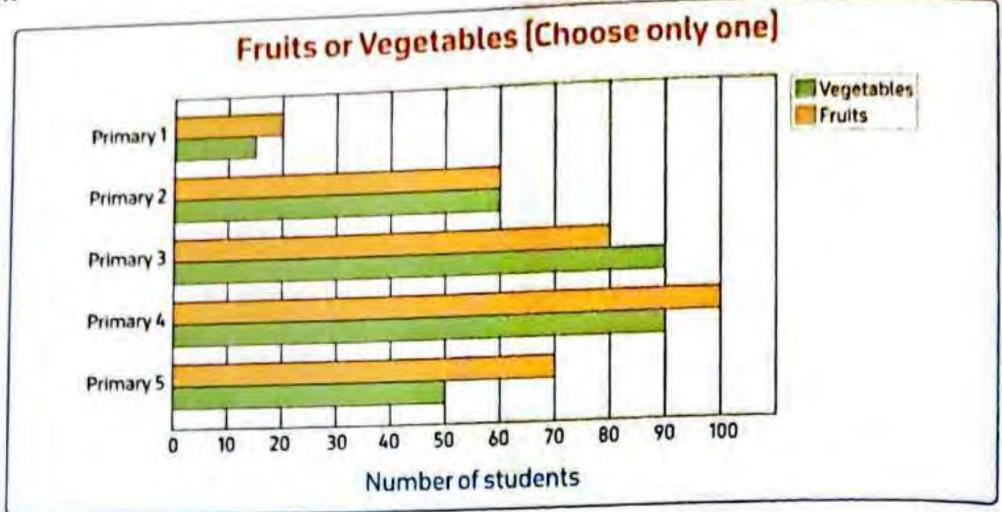
- b. Calculate the total number of visitors in Arts museum in the two years.
- c. Calculate the total number of visitor in 2005 in the three museums.
- d. Calculate the difference in the number of visitors of National museum had between the two years.



- e. Which two museums had the same number of visitors? Which year?
- f. Calculate the difference in the total number of visitors in the three museums between the two years.
- 6. The following double bar graph shows the highest and lowest temperatures in some of the world's capital cities in a month. Observe the graph, then answer the questions.
 - a. Which capital had the highest temperature?
 - b. What is the lowest temperature in Cairo?
 - c. Calculate the difference between the highest and lowest temperatures in Algiers.
 - d. Calculate the difference between the highest temperatures between Cairo and Moscow.



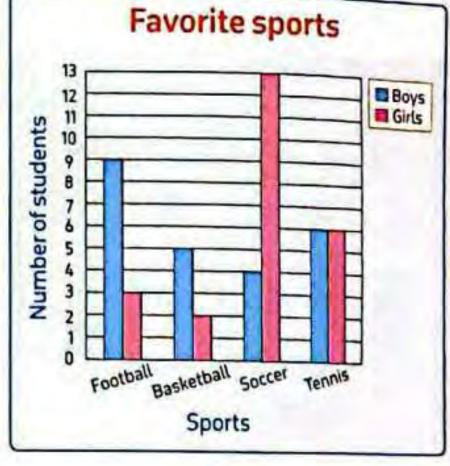
7. Use the double bar graph to answer the questions about what students in each grade prefer.



- a. Which grade has the same number of students who like fruits and vegetables?
- b. Which grade likes vegetables more than fruit?
- c. How many more students in Primary 4 like fruit versus students in Primary 1?
- d. How many students like fruit in both Primary 1 and 2?
- e. How many more students in Primary 2 and Primary 3 like vegetables than in Primary 4 and Primary 5?
- f. How many total students were surveyed?
- g. Why is this a good data set to use a double bar graph?
- 8. Andy took a survey of his classmates to find their favorite sports. He recorded the data in a double bar graph.

Use Andy's data to complete the table.





First:

Use the graph to answer the questions.

- a. How many more boys than girls chose basketball?
- b. How many students liked football the most?
- c. For which sport is there the greatest difference between boys and girls?
- d. Which is the least popular sport?

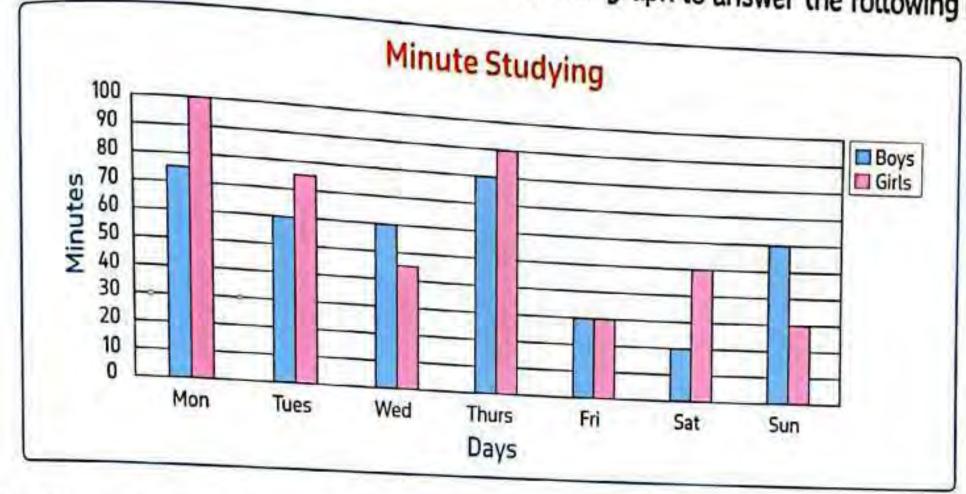
T

F

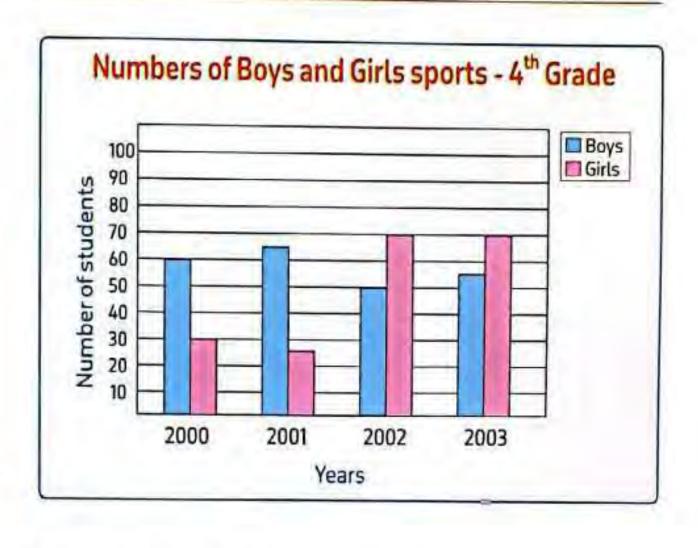
second:

use the graph. Circle T if the statement is true and F if the statement is false.

- a. Three times as many boys as girls chose football. b. More girls than boys chose soccer. F c. Tennis is the most popular sport. T F d. Soccer is the most popular with boys. T
- g, the double bar graph below compares the average number of minutes boys and girls at Sycamore school study each day of the week. Use this graph to answer the following questions.



- a. How many more minutes did boys study on Wednesday than girls?
- b. On how many days did girls study more than boys?
- c. On which day did boys study the most?
- d. Did more boys or more girls study during the week and by how long?
- e. On which day did boys and girls study the same number of minutes?
- The opposite double bar graph compares the number of fourthgrade boys and girls at a school who played sports over four years. Use this graph to answer the following questions.
 - a. How many more girls than boys played sports in 2002?
 - b. In how many years did more girls play sports than boys?



- c. In which year did the least number of girls play sports?
- d. In all four years combined. Did more girls or more boys play sports and by how many?

11. Single or Double? Look at each table and the data collected. For each table, decide if the data could be presented in a double bar graph. Record your answer and your reasoning.

Table 1 Minimum and Maximum Monthly Temperatures in Cairo.

Month	Minimum	Maximum
January	9	19
February	10	20
March	12	24
April	15	28

Could this data be represented in a double bar graph?

Table 2 Favorite sports.

Sport	Number of students
Soccer	48
Basketball	24
Swimming	32
Gymnastics	12

Could this data be represented in a double bar graph?

Table 3 Favorite foods.

Food	Boys	Girls
Baklawa	25	18
Fteer Meshaltet	17	12
Ful Medames	20	26
Tamiya	11	16

Could this data be represented in a double bar graph?

12. Answer the following questions.

a. Mohab collected some data from his colleagues about their favorite animals.
Circle the most appropriate type of graph that shows Mohab's data.

Line plot

bar graph

pictograph

double bar graph

b. A meteorologist compares rain fall in 2000 and 2020 in different countries in sub-saharan Africa.

Circle the best type of graph that represents this data.

Line plot

bar graph

pictograph

double bar graph

c. The data showing the favorite fast food of boys and girls of grade four.

Fast Food	Pizza	Noodles	Pasta	Rurgora
Boys	25	40	15	Burgers
Girls	30		1	25
05	30	35	30	45

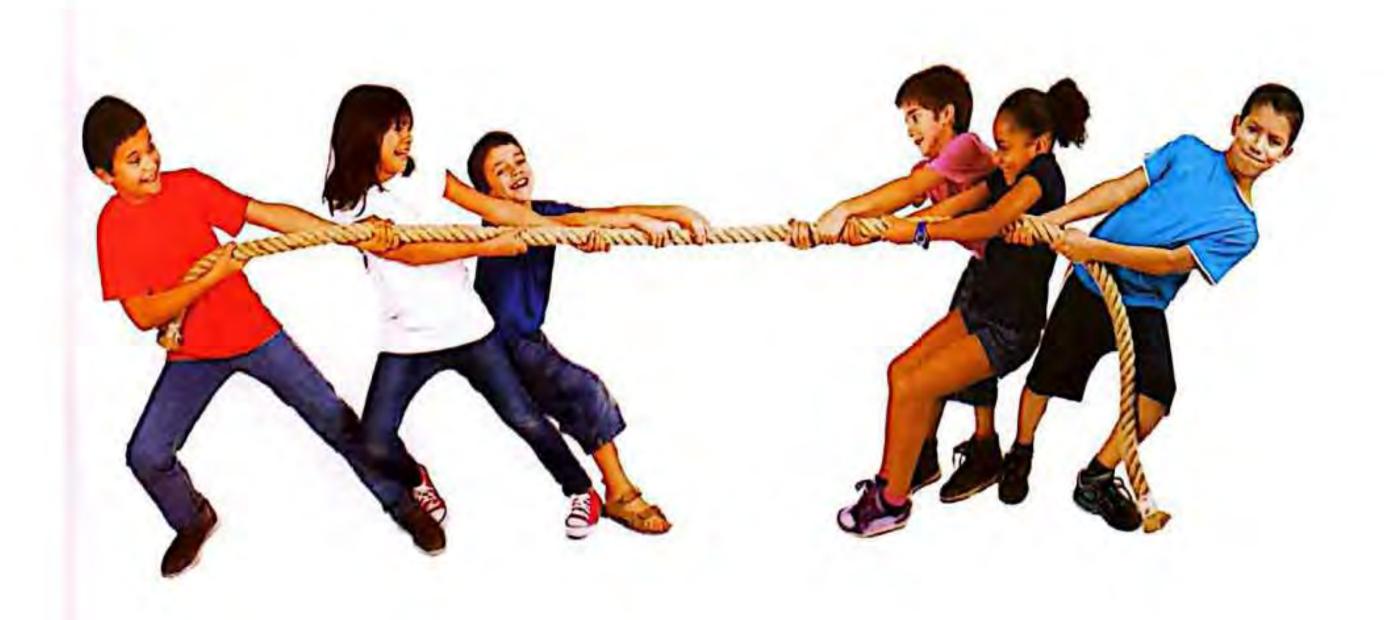
Circle the best type of graph that represents this data.

Line plot

bar graph

pictograph

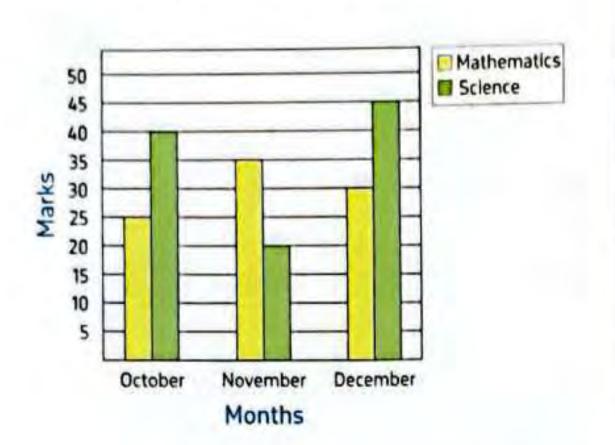
double bar graph



Multiple Choice Questions

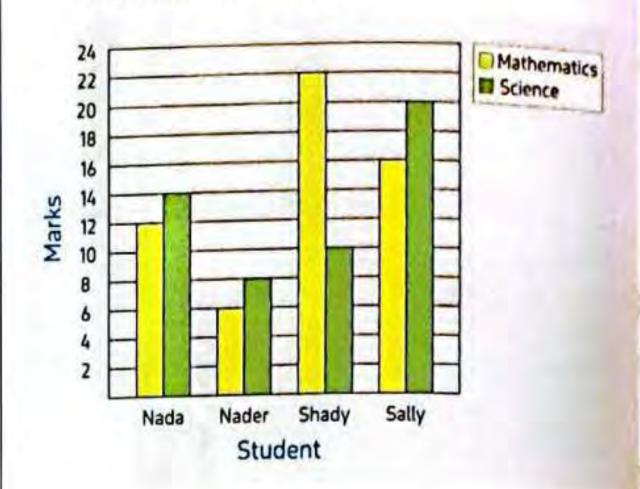
Choose the correct answer.

1. The graph shows a student's marks in Science and Mathematics over three months. In which month was the lowest mark recorded in Mathematics?



- A. October
- B. December
- C. November

2. The graph shows the marks of four students in Mathematics and Science tests. Which student got the highest mark in Mathematics?



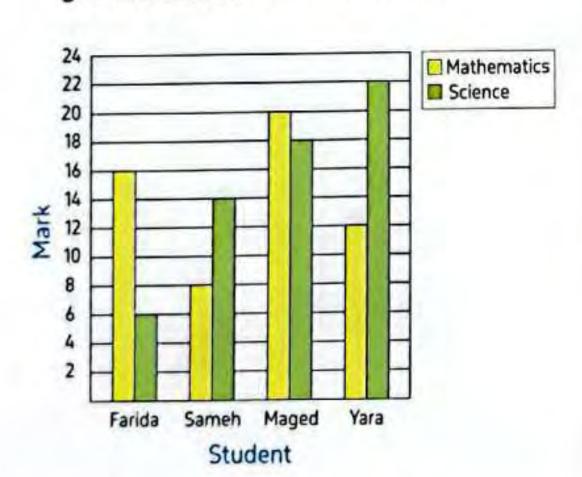
A. Nada

B. Shady

C. Sally

D. Nader

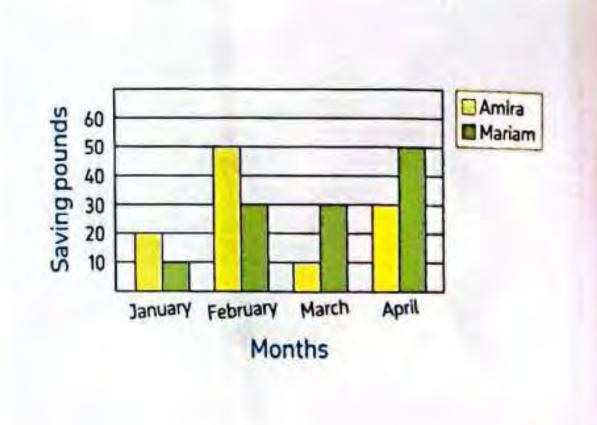
3. The graph shows the marks of four students in Mathematics and Science. Which student got the lowest mark in Science?



A. Yara

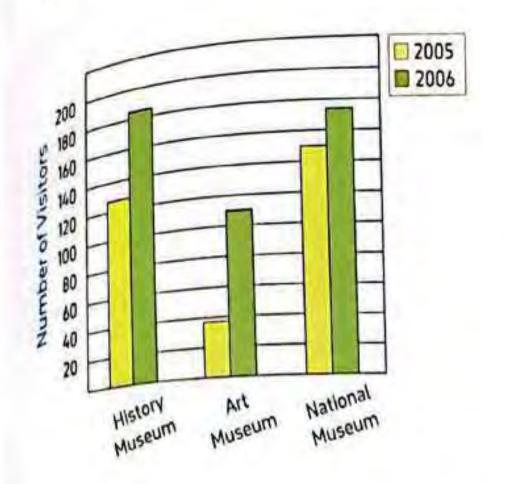
- B. Farida
- C. Sameh
- D. Maged

4. The graph shows the savings of Mariam and Amira over four months of a year.
Who has the highest total savings?



- A. Mariam
- B. Amira

The graph shows the number of visitors to three museums in 2005 and 2006. Which three museum have more visitors in 2006?

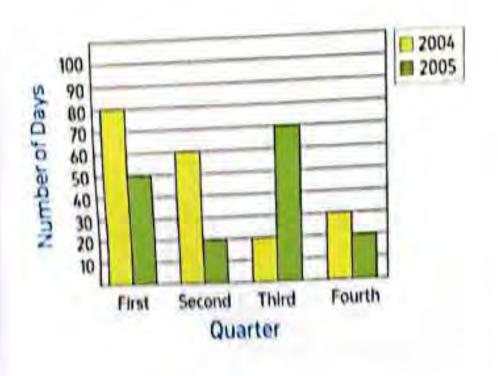


- A. National museum C. Art museum
- B. History museum

6. The number of students in each grade of a middle school is shown in the graph. Which grade have the same number of girls and boys?

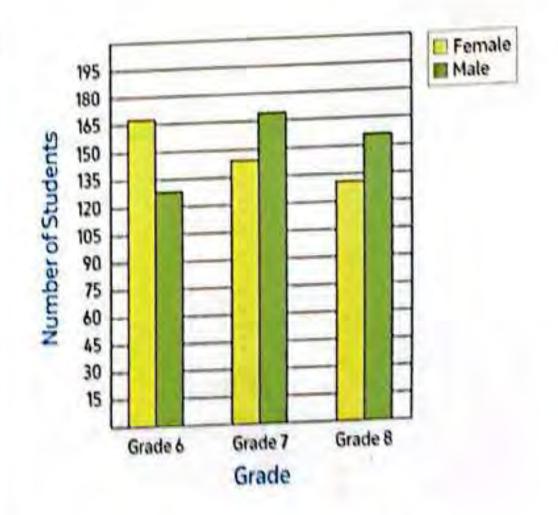


- A. Grade 6
 - and a O
- B. Grade 7
- C. Grade 8
- 7. This multiple bar graph compares the total number of days students were absent over two academic years. Which quarter has the greatest difference in the number of days?



- A. The first quarter.
- B. The third quarter.
- C. The second quarter.
- D. The fourth quarter.

8. The number of students in each grade at a school is shown in the graph. Are there more female students than male students in each grade?



A. Yes.

B. No

Lesson 2

11-2 Plotting Along 11-3 Breaking the Bar

Learn

Line plot with fractions

A line plot is a graph that shows the frequency of data along a number line, a line plot is used to represent and compare data.

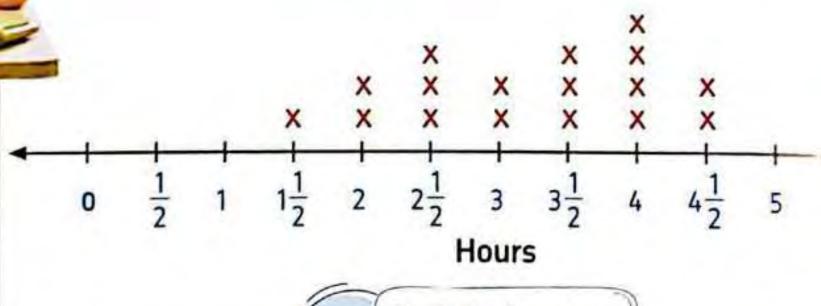
Farid collected data about the number of hours spent doing homework of his friends to the nearest $\frac{1}{2}$ of hour and the data were as follows.

Hint

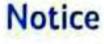
These data contains fractions, it can be represented by a line plot using a number line its interval increases by $\frac{1}{2}$.

Farid represented these data by a line plot.

Hours Spent Doing Homework



Key Each x = 1 person



Line plot often used when the data shows numbers or measurements such as :

- Lengths.

- Hours.
- Number of members.
- Weights.

Notes for parents:

Help your child construct a line plot using data with fractions.

Example 1

Amgad has a farm, and just received a shipment of young tomato plants. He wanted to get a clear view of the lengths of plants he received to the nearest $\frac{1}{4}$ dm.

He recorded the lengths in dm as follows:

	3 3/4	4 1/4	3 3/4	4 1/2	3 1/2	4
4 1/4	4 1/2	4	3 1/2	4 1/2	4 1/4	3 3/4
3 1/2	4 1/4	3 3/4	4 1/2	4 1/4	3	4 1/4

Represent these data by a line plot, then answer the questions.

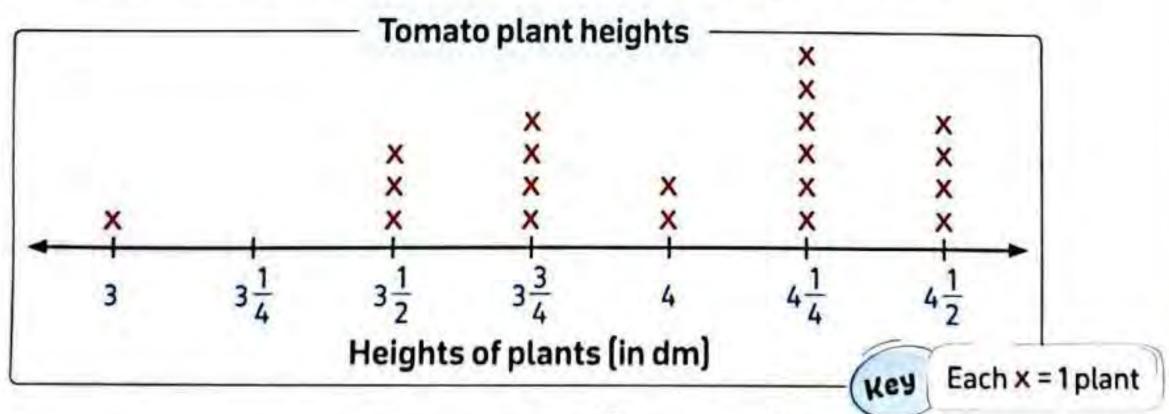
- a. Which plant height occurred most often?
- b. Which heights were recorded for the same number of plants?
- c. How many plants did Amgad measure all together?
- d. What was the height of each of the tallest and the shortest plants?
- e. How many total plants measured 4 dm to $4\frac{1}{2}$ dm?
- f. How many more plants were $4\frac{1}{4}$ dm than $3\frac{1}{2}$ dm?

Solution 😯

To represent these data by a line plot follow the steps.

Step 1: Draw a number line. Because the smallest length is 3 dm and the tallest length is $4\frac{1}{2}$ dm, you can use a scale of 3 to $4\frac{1}{2}$ and an interval of $\frac{1}{4}$, write a title.

Step 2: Put an "X" above the number that represents the length of each plant.



- a. $4\frac{1}{4}$ dm
- c. 20 plants.
- e. 2+6+4=12 plants.

- **b.** $3\frac{3}{4}$ dm and $4\frac{1}{2}$ dm
- d. $4\frac{1}{2}$ dm, 3 dm
- f. 6-3=3 plants.

^{*}Ask your child to think when fractions could be used in a graph.



diedk your understanding

Use the following data to make a line plot.

6 1	7	5	7	7	6	6 1/2	7 1/2	5 1/2	6 1/2
- 1	6	6 1/2	6 1/2	5 1/2	7	5	6	6 1/2	5 1/2

Learn Construct a double bar graph

Double bar graph helps to compare or present more than one kind of information, situations, or events instead of just one by using bars.

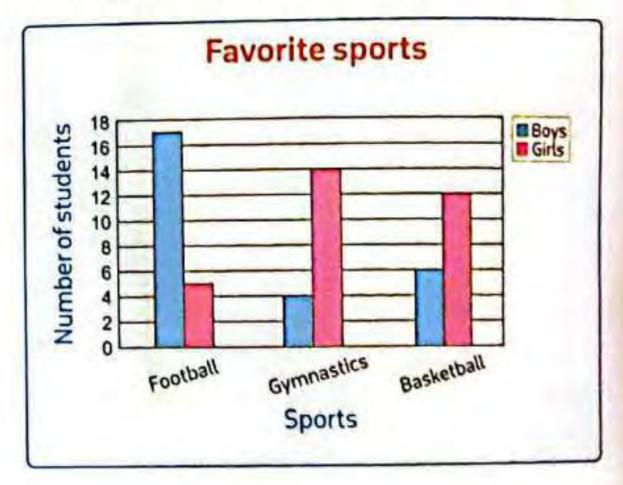
Here is a table of data shows the favorite sports for boys and girls.

Favorite sports				
Sport	Boys	Girls		
Football	17	5		
Gymnastics	4	14		
Basketball	6	12		

By following the following steps to represent the above data, the graph will be as follows:

How to construct a double bar graph?

- 1. Decide what title you will give the graph.
- 2. Decide if you want horizontal or vertical bars.
- 3. Choose a suitable scale.
- 4. Put label on the axes.
- 5. Draw the bars.
- 6. Give two different colors for differentiating two data.



Hint

Most data contains even numbers. So, scale of 2 is more suitable.

Notes for parents:

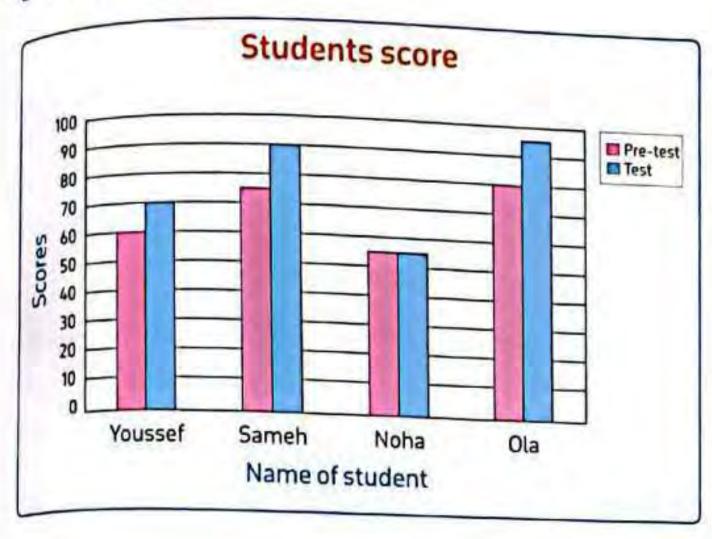
Help your child choose the suitable scale when he/she construct a double bar graph.

Example 2

scores obtained by the four friends Youssef, sameh, Noha and Ola in the pre-test and test are given below. Represent these data.

Students score					
Name of Student	Pre-test	Test			
Youssef	60	70			
Sameh	75	90			
Noha	55	55			
Ola	80	95			

solution 😯





Most data contains big numbers.
So, scale of 10 is more suitable.

Example 3

The following data shows the walking distance to the nearest $\frac{1}{4}$ kilometers of four friends in two different days.

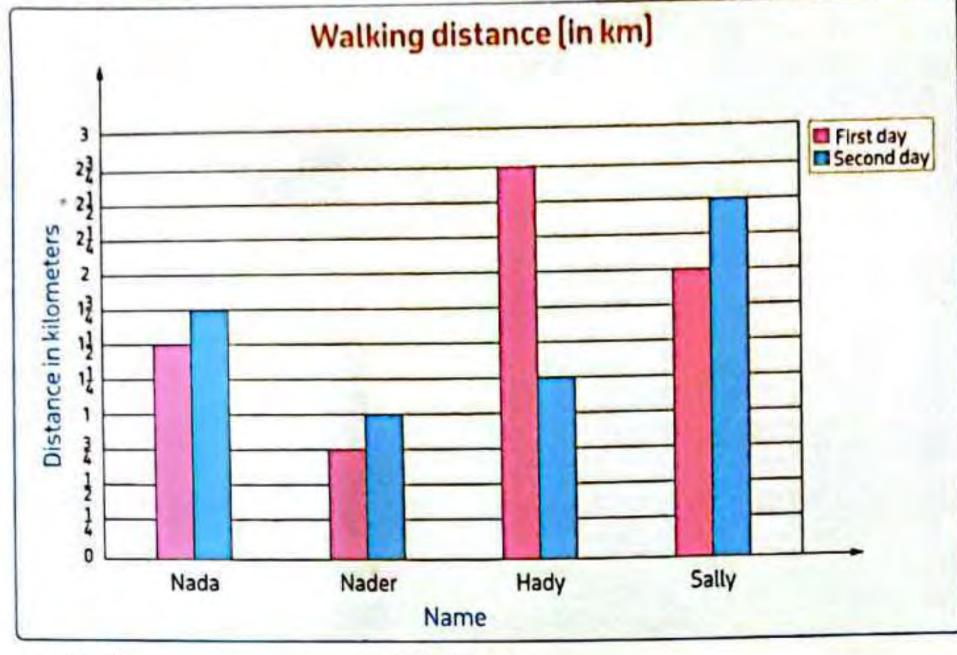
Name	Nada	Nader	Hady	Sally
First day	1 1/2	3 4	2 3 4	2
Second day	1 3/4	1	1 1/4	2 1/2

Represent this data by using a double bar graph, then answer the following questions.

- a. Who walked the tallest distance in first day?
- b. Who walked the shortest distance in second day?
- c. What is the difference between the tallest distance and the shortest distance in second day?
- d. Who walked the same distance as Nada in the second day in the two days?
- Help your child to construct a double bar graph using data with fractions.

Solution [V]





Hint

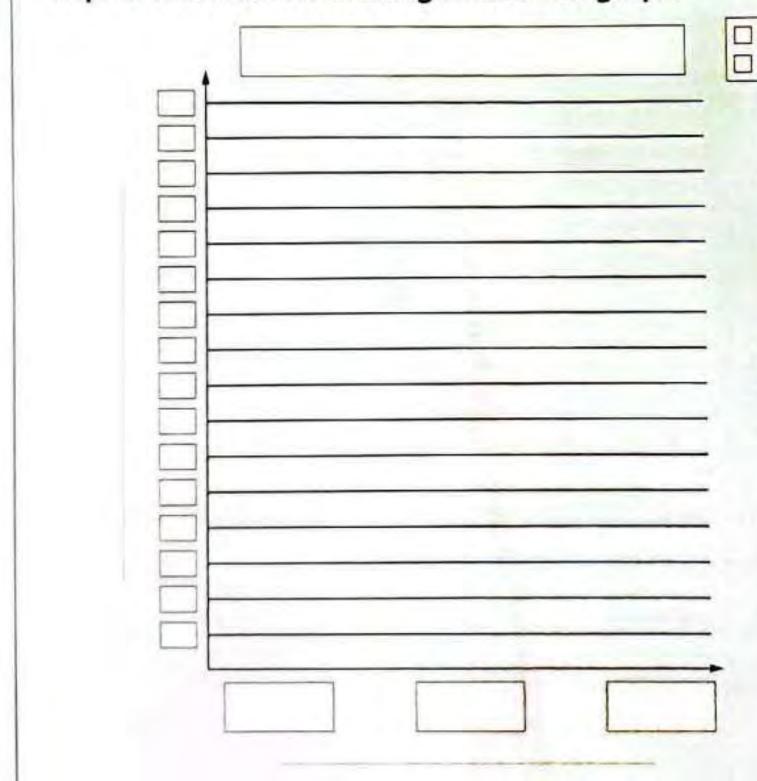
Most data contains fractions. So scale of $\frac{1}{4}$ is more suitable.

- a. Hady
- b. Nader
- c. $2\frac{1}{2} 1 = 1\frac{1}{2}$ kilometers d. Nader $[\frac{3}{4} + 1 = 1\frac{3}{4}$ kilometers as Nada walked in the second day]

dheck your understanding

The following data shows the marks of three students in Mathematics and Science tests and full mark is 10.

Represent these data using double bar graph.



Name Subject	Andy	Reem	Nour
Mathematics	7	6	5 1/2
Science	7 1/2	6 1/2	8

Notes for parents:

Ask your child why a double bar graph would be a good choice to show the data in this page.



11-2 Plotting Along

11-3 Breaking the Bar

O UNDERSTAND

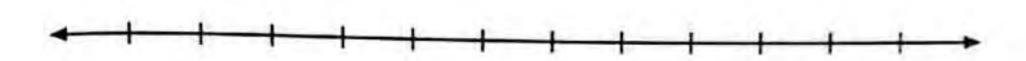
PROBLEM SOLVING

From the school book

First: Line plot

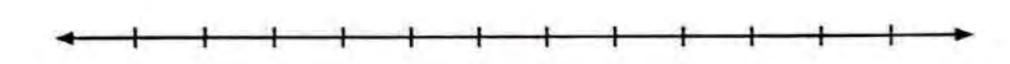
1. Use the following data to make a line plot, then answer the questions.

a. 11 kg, 12
$$\frac{1}{4}$$
 kg, 11 $\frac{3}{4}$ kg, 11 $\frac{1}{2}$ kg, 12 kg, 11 $\frac{1}{2}$ kg, 11 $\frac{1}{4}$ kg, 11 $\frac{1}{4}$ kg, 11 $\frac{1}{2}$ kg, 12 kg



- 1. Give the line plot a title.
- 2. What is the most common record?
- 3. What is the least common record?

b.
$$3 \text{ m}$$
, $3\frac{1}{3} \text{ m}$, 4 m , $4\frac{1}{3} \text{ m}$, $3\frac{2}{3} \text{ m}$, $3\frac{1}{3} \text{ m}$, $4\frac{2}{3} \text{ m}$, $4\frac{1}{3} \text{ m}$, 4 m , 4 m , 3 m , $3\frac{1}{3} \text{ m}$, $4\frac{2}{3} \text{ m}$.



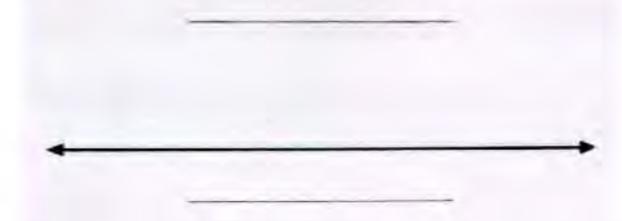
- 1. Give the line plot a title.
- 2. What is the most common record?
- 3. What is the least common record?
- 2. The following data show the ages of nursery's kids to the nearest $\frac{1}{2}$ of year.

Represent the data on the line plot. Give the line plot a title.

1	5 1/2	2 1/2	2	3 1/2	1	3
2	4	1	5 1/2	2	3 1/2	2 1/2

Answer the questions.

- a. How many children were 1 year old ?
- b. How many children were 4 years old?



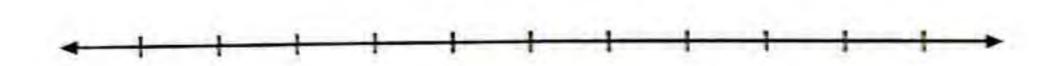
- c. How many children were 2 years old to 3 $\frac{1}{2}$ years old?
- d. How many more children were 2 years old than 4 years old?
- e. How many children were at the nursery in all?
- 3. Survey Says. The titles identify data that could be collected and graphed.

 Read the titles and answer the questions.
 - a. Line plot graph frequency of data (how many times each data point appears).
 Circle the titles that could be plotted on a line plot.

	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Number of People in Our Families	Our Heights
Our favorite foods	Our shoe sizes
Our favorite animal	Distance from home to school
Weight of our school bags	Our favorite movie
Minutes spent playing outside	Our favorite free time activity

- b. Choose one of the titles you circled in the previous item and draw what the line plot might look like. Use a sheet of paper or graph paper to create your line plot.
- 4. The following data show the marks of mathematics test for students. Create a line plot for the given data. Use the line plot to answer the following questions.

18	19	17	18 1/2	20	16 1/2	18 1/2	19 1/2	17 1/2	20	17	18 1/2
								18 1/2			



- a. How many students are in all?
- b. What is the least mark? What is the highest mark?
- c. What is the most common mark did the students get?
- d. How many students got 18 marks or more?
- e. How many more students got 17 $\frac{1}{2}$ marks than 20 marks?
- f. Write one statement about the data.

5. Going the Distance. These data show the distance from home to school for students.

The data are given in kilometers. Create a line plot for the given data. Use your line plot to answer the questions.

Hint

The title is already written. Remember to label your number line and include a key.

$$\frac{3}{5}$$
 km; $\frac{2}{5}$ km; $\frac{5}{5}$ km; $\frac{4}{5}$ km; $\frac{2}{5}$ km; $\frac{4}{5}$ km; $\frac{5}{5}$ km; $\frac{4}{5}$ km; $\frac{4}{5}$ km; $\frac{1}{5}$ km

- a. How many students were surveyed?
- b. What is the shortest distance any student lives from school?
- c. What is the farthest distance any student lives from school?
- d. What is the most common distance students live from school?
- e. What are the least common distances students live from schoool?
- f. Write one statement about the data.
- 6. These data show the weights of some containers hold an amount of liquid.
 The data are given in liters. Create a line plot for the given data.

Give the line plot a title. Use the line plot to answer the questions.

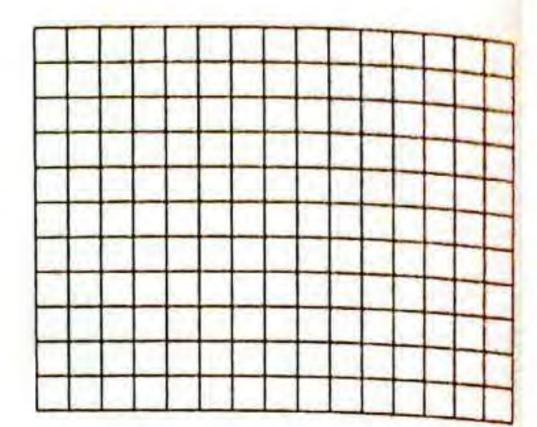
- a. What is the most common amount of liquid?
- b. Which measurements are not represented by the data on the line plot?
- c. How many containers are there in all?
- d. How many containers hold more than $\frac{4}{7}$ liters?
- e. How many more containers hold $\frac{3}{7}$ liters than $\frac{1}{7}$ liters?
- f. Write one statement about the data.

Second: Breaking the bar

7. The following data show the internet usage for four friends. The data are given to the nearest $\frac{1}{4}$ of hour. Use the following table to complete the bar graph, then answer the questions.

Name	Samer	Amira	Islam	Enas
Number of hours	3 4	2 1/4	$1\frac{1}{2}$	2

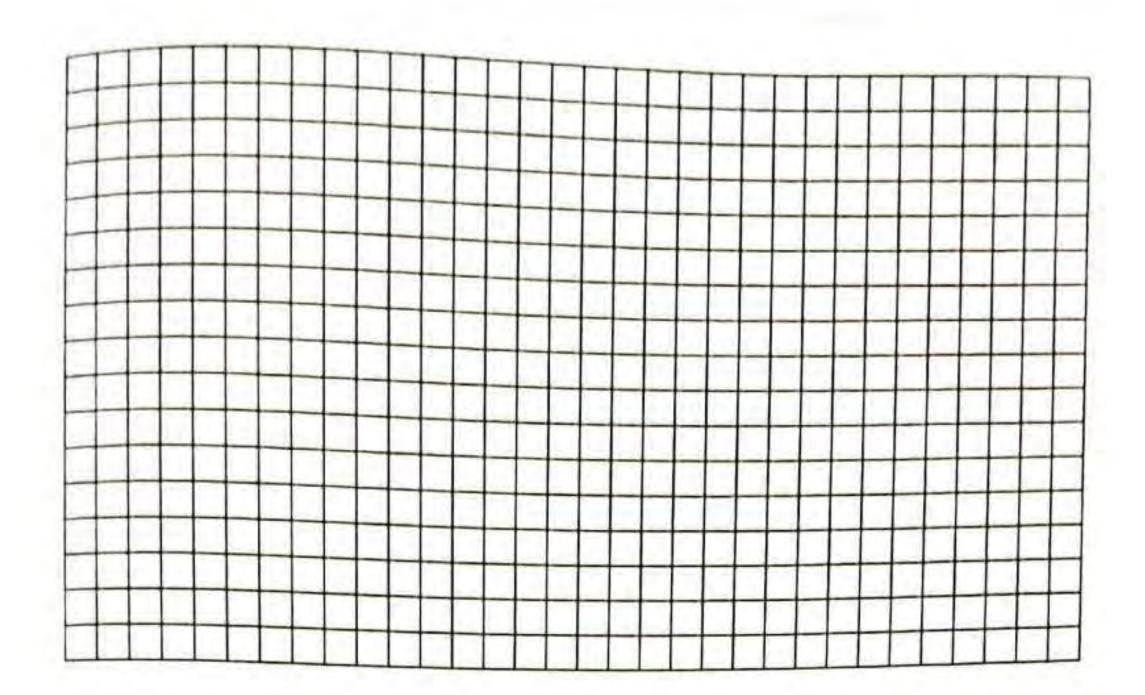
- a. Who uses the internet the most time?
- b. Who uses the internet the least time?
- c. What is the difference between Enas and Samer?
- d. What is the total internet usage in all?
- e. How many more hours did Amira use than Islam?



8. Rolling, Rolling, Rolling Part 1. Omar and Malek conducted an experiment. They wanted to see how far their friends could roll a heavy ball. They drew a starting line in the dirt and asked six friends to roll a 10 kilograms ball as far as they could from the starting line. They measured the distance in meters to the nearest $\frac{1}{4}$ meter and record their data in a table.

Student	Distance for 10 kg Ball (in m)
Rana	$\frac{3}{4}$ m
Salah	1 1/2 m
Tahani	1 1/4 m
Ziad	2 1/4 m
Farouk	1 3/4 m
Walid	$2\frac{1}{2}$ m

Create a bar graph that shows Omar and Malek's data. Remember to include all the elements of a bar graph.



Now, write two questions about the bar graph you created and then answer them. Question 1:

Question 2:

 Rolling, Rolling Part 2. Omar and Malek decided to see how far the same students could roll an 8-kilogram ball and compare the data they collect to the data for the 10-kilogram ball.

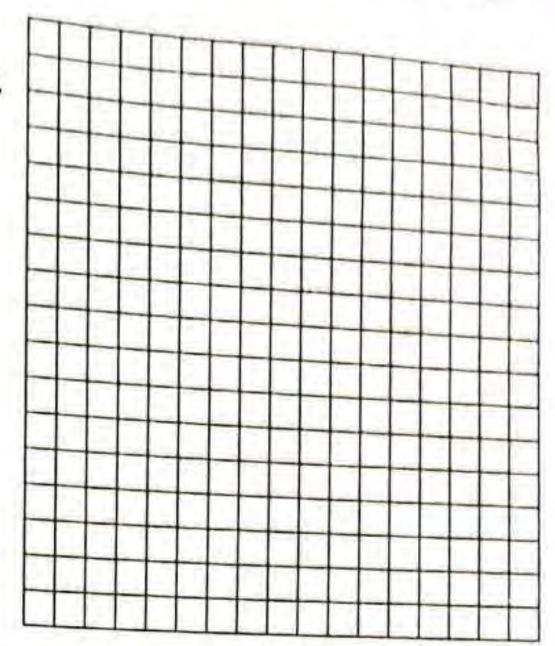
Student	Distance for 10 kg Ball (in m)	Distance for 8 kg Ball (in m)	
Rana	$\frac{3}{4}$ m	1 1/4 m	
Salah	1 1/2 m	2 m	
Tahani	1 1/4 m	2 m	
Ziad	2 1/4 m	3 1/2 m	
Farouk	1 3/4 m	$2\frac{1}{2}$ m	
Walid	2 1/2 m	$3\frac{1}{4}$ m	

- a. Add this new data to your graph from Part 1, so that you can compare each student's two rolls.
 - When finished, answer the following questions about the double bar graph data.
- b. Which students rolled the 8 kilograms ball exact $\frac{1}{2}$ a meter farther than they rolled the 10 kilograms ball?
- c. Which student had the biggest difference between their 10 kilograms ball roll and their 8 kilograms ball roll?
- d. What is the sum of Ziad and Farouk's 8 kilograms rolls?
- e. Looking at the data, what could you infer would happen if the students rolled a 6 kilograms ball. Explain your reasoning.
- f. Pick two students and find the total distance of both of their rolls (10 kilograms and 8 kilograms).
- 9. Writing About Math. Double bar graphs require you to compare two related sets of data. Read the titles of the graphs and think about the data you would collect for each.
 - Height of students.
 - Favorite subject in school.
 - How many books you read each month.
 - Number of different types of cars sold.
 - Length of 5 objects in your desk.
 - Hours slept each night.
 - Temperatures in different cities.
 - a. Circle the titles that could be double bar graphs.
 - b. For the titles you circled, record the two categories you might use for the different bars.
- 10. Giovanni made a table to show the marks for his team, the Goldenrods, and the opposing team in the first three exams. What type of graph would be most appropriate for Giovanni to use to display these data? Explain.

Marks Scored in Each Exam							
Team	Exam 1	Exam 2	Exam 3				
Goldenrods	30 1/2	31 1/4	31 1 2				
Opponents	32 1/4	30 1/2	31 1 4				

Represent these data by this type of graph, then answer the following questions.

- a. Which team has got the highest score in Exam 3?
- b. Which team has got the lowest score in Exam 1?
- c. What is the difference between the highest and lowest score in Exam 2?
- d. What is the sum of the highest and lowest score in Exam 3?

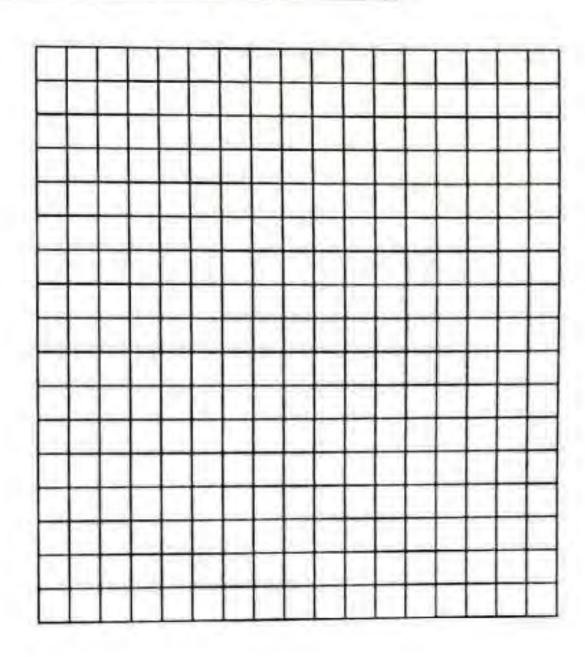


The following data shows the walking distance in a week by two friends Bassem and Amal.

The data are given in kilometers. Represent these data by a double bar graph showing the week's data. Then use the graph to answer the following questions.

Days Name	Sunday	Monday	Tuesday	Wednesday	Thursday
Bassem	2 1/4	1 1/2	3 3 4	3	3 1/2
Amal	1 3/4	1 1/2	2 1/2	3 1/4	4

- a. Which day Bassem walked the longest distance?
- b. Which day Amal walked the shortest distance?
- c. On which day did Bassem and Amal's total equals 4 kilometers?
- d. How many total kilometers did Amal walk in all?
- e. How many total kilometers did Bassem walk in all?
- f. On which day did Bassem walk twice as far as he did in Monday?



Multiple Choice Questions

Choose the correct answer.

- 1. Which of the following can be represented by a line plot?
 - A. Our favorite movie.
 - B. Our favorite animal.
 - C. Our height.
 - D. Our favorite food.
- 3. Which of the following can be represented by a double bar graph?
 - A. Sleeping hours every night.
 - B. Max. and Min. temperature in different cities.
 - C. Favorite food.
 - D. Length of 5 things on your desk.

- 2. Which of the following can not be represented by a line plot?
 - A. The number of our family members.
 - B. Distance between home and school.
 - C. Our shoe sizes.
 - D. Our favorite activity in our spare time.
- 4. Which of the following can not be represented by a double bar graph?
 - A. The height of two types of plants through 5 weeks.
 - B. The number of boys and girls in each grade of a primary school.
 - C. Number of absent pupils in your class this week.
 - D. The score of the pupil's exam in Math and English.
- 5. The following table can be represented by

Subject	Arabic	English	Math	Science
Bassem	30	35	39	33
Mona	25	40	37	38

- A. A line plot.
- B. A bar graph.
- C. A double bar graph.
- 6. The following data show the heights of 20 pupils in centimeters in class 4/A

110	111	109	108	100	101	103	105	103	104
102	111 100	103	105	110	104	106	100	109	103

What is the suitable method of representing this data?

- A. A line plot.
- B. A bar graph.
- C. A double bar graph.



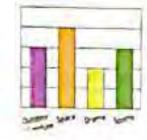
11-4 Data About Us

11-5 Graphing the Class

Learn

There are many different of graphs and tables can be sorted into three categories:

Bar Graph

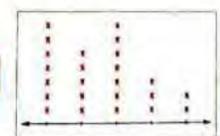


Bar graph is used to compare things between different groups or to track change over large periods of time with one group surveyed.

Examples of data can be represented by bar graph:

- Favorite animal or pet.
- Favorite color or sport.
- Favorite food or fruit.
- Favorite season.
- Favorite subject.
- Student marks.

Line Plot



Line plot is used to show the frequency of data on a number line.

Examples of data can be represented by line plot:

- Date involving measurements such as: length of time, distance, height, or weight.
- Number of siblings.
- Number of pets.

Double Bar Graph



Double bar graph is used to display two sets of data on the same graph using two different colors to compare the two categories.

Examples of data can be represented by double bar graph :

- Favorite color between boys and girls.
- Favorite food between boys and girls.
- Students marks of two subjects.
- Highest and lowest temperature of some cities.
- Saved amounts during months between two persons.

Notes for parents:

Explain that the data affect the type of graph.

The four main elements to graph the data:

- 1. Title.
- 2. Labels for each axis.
- Scale with increments accurately marked.
- 4. A key if needed.

Example 1

Choose the suitable data graphing from the opposite table for each of the following situations. (Hint: Some data can be represented by more than one way).

Bar graph Double bar graph Line plot

- a. Data about favorite car color for a group of 30 children.
- b. Data about 4 friends marks in two different subjects.
- c. Data about studying hours at home for 25 students.
- d. Data about sales of 5 items in a company between two years.
- e. Data about weight of water bottles to the nearest $\frac{1}{4}$ of liter for 35 bottles.
- f. Data about student's marks in 5 subjects.

Solution [7



- a. Bar graph.
- d. Double bar graph.
- b. Double bar graph.
- e. Line plot or bar graph.
- c. Line plot or bar graph.
- f. Bar graph.

Example 2

Farida collected data about training time after school on a day for her friends to the nearest $\frac{1}{2}$ an hour as follows:

1	2	1/2	$2\frac{1}{2}$	1	2	3	1	1/2	2	$1\frac{1}{2}$
2	$1\frac{1}{2}$	2	1	$1\frac{1}{2}$	1/2	2	2 1/2	2	1	1/2

Help Farida show the data in the table and then represent these data by a line plot.



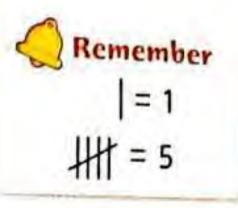
	Training time						
Time	Tally	Number					
1 2							
1							
1 1/2							
2	_						
$2\frac{1}{2}$							
3							

Notes for parents:

· Ask your child to select the most appropriate graph to display a set of data.



T	raining time	
Time	Tally	Number
1 2	III	4
1	##	5
1 1/2	Ш	3
2	##11	7
$2\frac{1}{2}$	11	2
2	1	



			X		
	X		X		
X	X		X		
X	X	X	X		
X	X	X	X	X	
X	X	X	X	X	X
1 2	1	11	2	21	3

Example 3

Hany made this list of the shirt colors his friends were wearing.

Make a tally table and represent it by a bar graph, then answer the following questions:

Blue	Red	Blue	Green	Green	Green	Blue
Red	Blue	Blue	Red	Blue	Red	Red
Blue	Red	Blue	Blue	Blue	Red	

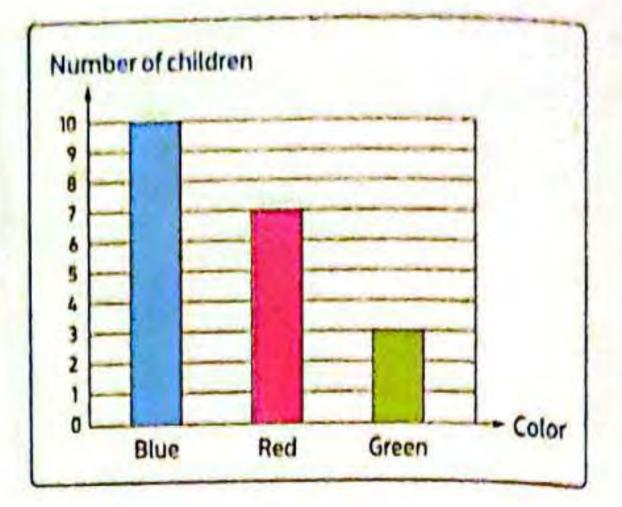
- a. How many children were wearing blue shirts?
- b. What was the color of the most shirts?
- c. List the shirt color data from the least to the greatest.

^{*}Ask your child to use tally marks to count things at home, such as mugs, books and spoons. Ask him/her to show these data by a graph.

Solution [V]



Color	Tally	Total
Blue	####	10
Red	11111	7
Green	111	3



- a. 10.
- b. Blue.
- c. Green , Red , Blue.

Example 4

The following data shows the votes of students favorite juice flavor among boys and girls. Complete the table finding the totals. Represent these data by a suitable graph.

	Favorit	te Juice Flavor			
Flavor	Та	lly	Total		
Flavor	Boys	Girls	Boys	Girls	
Orange	##11	IIII			
Apple	##1	##1111			
Strawberry	111	####			
Mango	##	##11			
Guava	##111	1111			

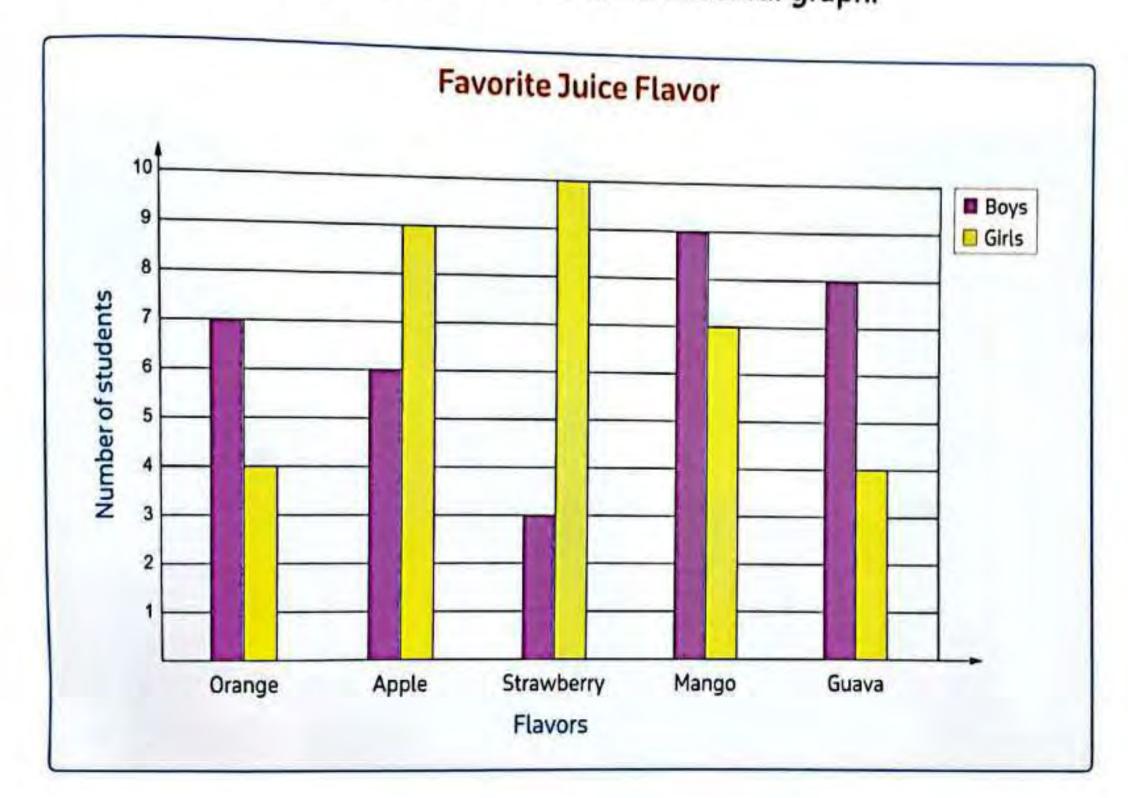
Notes for parents:

· Ask your child to use tally marks to count the girls and the boys in his/her family and represent his/her data by a suitable graph.

solution [V

	Favori	te Juice Flavor			
Flavor	Та	illy	Total		
	Boys	Girls	Boys	Girts	
Orange	11111		7	4	
Apple	##1	##1111	6	9	
Strawberry	111	####	3	10	
Mango	##	##11	9	7	
Guava	##		8	4	

The suitable graph to represent these data is the double bar graph.



^{*}Work with your child to collect and record data, then ask him/her about the suitable graph he/she can represent these data.



check your understanding

Complete the following table to find the total.

Ler	ngth of jumps	
Length	Tally	Total
1 3	444	
3 2 3	1111	
1	144	-
1 1	االملا	
1 2/3	1111	-
2	111	

Represent the data of the table by a line plot.



Notes for parents:

After your child represents the data in this page, ask him/her questions about this data.

Exercise 25

11-4 Data About Us

11-5 Graphing the Class

REMEMBER

UNDERSTAND

O APPRO

PROBLEM SOLVING

From the school book

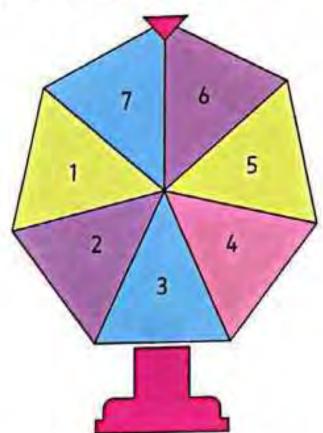
1. "THE SUN ALWAYS SETS IN THE WEST"

- Use a suitable graph that helps you to answer the question: Which letter appears the most in the previous sentence?
- 2. The football coach scored the following numbers of goals in the last twenty matches.

Represent this data by using a suitable graph to help you answer the following question.

- . Which number had the highest frequency?
- 3. A spinner is in the shape of a regular heptagon marked by the numbers 1 to 7.
- Samy spun the spinner 50 times and recorded his results in a table , as follows :

Score	Frequency
1	7
2	5
3	8
4	9
5	4
6	7
7	10



Represent this data by using a line plot. Then, answer the following question: How many times did he score a prime number?

4. Plot It Out. Look at the data and think about what scale you will use. How will you organize the fraction data? Where will your number line begin and end? Create a line plot for the data.

$$1\frac{1}{2}$$
 km; $2\frac{3}{4}$ km; 3 km; $2\frac{3}{4}$ km; $2\frac{1}{2}$ km; $2\frac{3}{4}$ km;

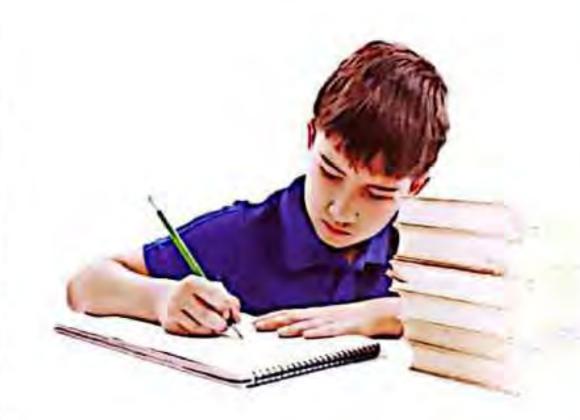
$$3\frac{3}{4}$$
 km; 3 km; $3\frac{1}{2}$ km; $2\frac{1}{2}$ km; $3\frac{1}{2}$ km; 1 km

5. Represent the following data by a line plot.

The hours you spent sleeping	6	6 1/2	7	7 1/2	8	8 1/2	9	9 1/2	10
Frequency	0	2	4	4	7	8	7	6	3

- Analyze the data.
- Write four numerical sentences about the data after drawing the line plot.
- 6. Complete the table. Represent the following data by a suitable graph.

Nui	mber of Siblin	gs
Number	Tally	Total
0	##11	
1	##	
2	##	
3	[]]]	
4		
5	II	
6		



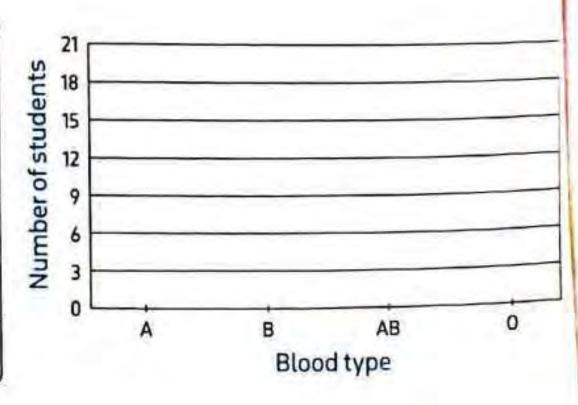
Hint: You can represent these data by more than one way.

7

Α	В	0	0	AB	0	Α	0	В	Α
0	В	Α	0	0	Α	AB	0	Α	Α
0	0	AB	В	Α	0	В	Α	В	0

The previous data shows the blood types of 30 primary school students. Complete the table, then represent this data by a bar graph.

Blood types						
Blood type	Tally	Number of students				
Α						
В						
AB						
0						



8. Complete the table. Represent the following data by a suitable graph.

How	Ve Get to School	
Mode of Transportation	Tally	Takel
Bus	## 11	Total
Walk	##	
Car	####	
Other		

9. Complete the following table. Represent the data by a suitable graph.

	Our Fa	vorite Food		
Food	Tally	Table	Total	
	Girls	Boys	Girls	Boys
Chicken	##	## 11		
Meat	##	##1		
Fish		##		
Other	## 11	## 11		

10. Complete the following table. Represent the data by a suitable graph.

	Our Fa	vorite Colors			
Colors	Tally	Marks	Total		
COLOTS	Boys	Girls	Boys	Girls	
Black	##1	1111			
White		##			
Red	III	##1			
Orange	##	1111			
Yellow		11			
Blue	##1				
Green	## 11	1			
Purple		##			
Pink		## 111			

11. The following situations need to be represented.

Choose from the opposite table the suitable data graphing.

Hint: Some data can be represented by more than one way.

Bar graph

Double bar graph

Line plot

- a. Data about number of siblings.
- b. Favorite animal between boys and girls.
- c. Favorite day of the week.
- d. Data about days spent at the beach.
- e. Data about toys sales during 4 months of 2 years.
- f. The votes are: Math, Arabic, Math, Math, English, Science, Science, Math, Arabic, Math, English, English
- g. The lengths are: 15 $\frac{1}{2}$, 15 $\frac{1}{4}$, 15, 16, 16 $\frac{1}{4}$, 15 $\frac{3}{4}$, 14 $\frac{3}{4}$, 16, 16 $\frac{1}{2}$, 15, 15, 15, 14 $\frac{1}{2}$, 16 $\frac{3}{4}$
- h. Favorite activity
 Activity Reading Drawing Art Sport
 Number 85 55 70 100
- Sport Students Basketball Ballet Football Tennis

 Boys 5 2 10 6

 Girls 7 7 3 6
- | Length of pencil | Measurement | $10\frac{1}{2}$ | $11\frac{1}{2}$ | $12\frac{1}{2}$ | $13\frac{1}{2}$ | $14\frac{1}{2}$ | $15\frac{1}{2}$ | Number | 3 | 5 | 2 | 1 | 6 | 7

Multiple Choice Questions

choose the correct answer.

- 1. Which type of graph is suitable for this data?
 - A. Double bar graph.
- B. Line plot.
- c. Bar graph.

Name	Ahmed	Nora	Sally	Ola
Age	13	17	15	10

2. Which type of graph is suitable for this data?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

- A. Double bar graph.
- B. Line plot.
- C. Bar graph.
- 3. Which type of graph is suitable for this data?

Number of hours	0	1	2	3	4	5
Number of students	2	4	10	11	3	1

- A. Double bar graph.
- B. Line plot.
- C. Pictograph.
- 4. Which type of graph is suitable for this data?
 - A. Double bar graph.
 - B. Line plot.
 - C. Bar graph.

Evaluation	Tally	Total
Excellent	11	2
V.good	## 111	8
Good	##1	6
Pass	1111	4

- 5. Which type of graph is suitable for this data?
 - A. Double bar graph.
 - B. Line plot.
 - C. Bar graph.

1	3	2	5	1	4
3	2	4	1	3	1
2	1	3	4	1	5

6. From the opposite tally table

the value of X is

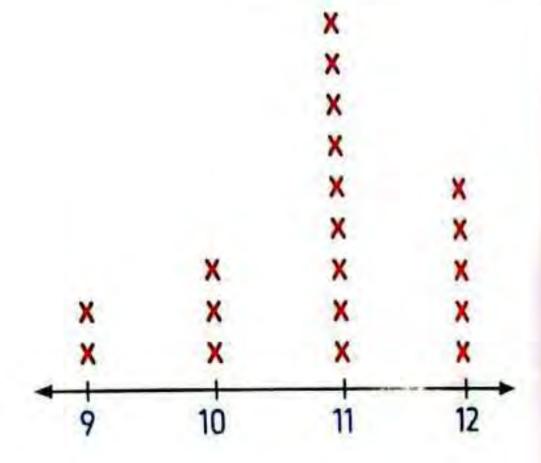
- A. 6
- B. 7
- C. 8
- D. 9

Name	Tally	Number
Amgad	1111	4
Ola	##	5
Nora	####	10
Alaa		X
Noha	11	2
Total		30

- 7. From the opposite tally table the value of X is
 - A. ## |
 - B. ||||
 - c. ##
 - D. |||

Subject	Tally	Number
Math		X
English	####	13
Arabic	#####	15
Science	###	11
Music	##1	6
Total		50

- 8. In the opposite line plot, if it represents the ages of 40 students in grade 4, then each X stands for ______ students.
 - A. one
 - B. two
 - C. three
 - D. four



Unit Eleven Assessments



Model



1. Choose the correct answer.

- a. Which of the following can be represented by a line plot?
 - A. Our favorite sport
- B. Our favorite color
- C. Our weight D. Our favorite food

A. 5

B. 6

C. 7

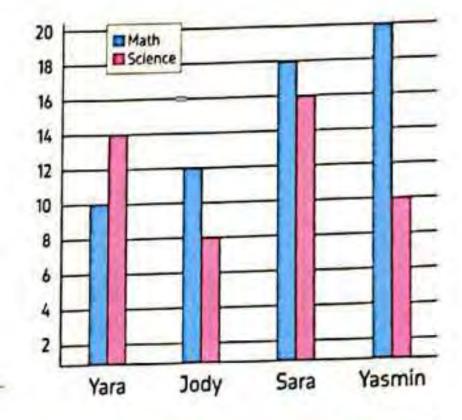
D. 8

- c. Which of the following by a double bar line?
 - A. Favorite animal

- B. Marks of friends in Math
- c. Marks of friends in Math and Arabic
- D. Our height
- 2. The opposite graph shows the marks of four students in Math and Science tests.

Complete.

- a. The student got the highest mark in Math is
- b. The difference between the Math mark and Science mark of Yasmin is
- c. The student got the lowest mark in Science is



3. Use the following data to make a line plot.

5 1/2	3 1/2	6 1/2	4 1/2	5 1/2	4 1/2	6 1/2	5 1/2	4 1/2	5 1/2
4	3	5	5 1/2	3 1/2	4	6	6	4	5

4. The following data shows the number of study hours in a week by Eslam and Mina. Represent this data by a double bar graph.

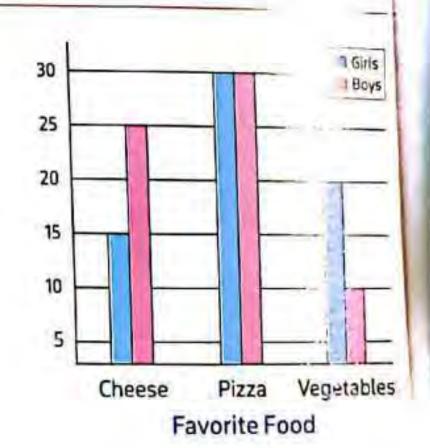
Days Name	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.
Eslam	3	4	5 1/2	5	3	5	3 1/2
Mina	3 1/2	3	5	6	4 1/2	6 1/2	2

Model

- 1. Choose the correct answer.
 - a. To represent the number of walking hours for Ahmed and Hassan in one week you can use
 - A. line plot
- B. pictograph
- C. double bar graph D. bar graph
- b. Maged collected some data about the favorite pet of his friends. Which kind of representing data is the best?
 - A. line plot
- B. double bar graph C. bar graph
- D. pictograph
- c. The opposite line plot represent the lengths of some trees by meter. Which length that represent greatest number of tree?

- A. $2\frac{1}{2}$
- B. 3
- C. $3\frac{1}{2}$
- D. 4

- 2. The opposite graph represent the favorite food to boys and girls in grade four. Complete.
 - a. The number of girls in grade four is
 - b. The number of boys that like cheese is
 - c. The type of food that liked by the same number of boys and girls is



3. The opposite tally table represent the favorite color of some student.

- a. The number of students that prefer yellow is
- b. The number of students that prefer green is _
- c. The color that has most favorite is
- d. The difference between the number of students which favorite green and black is -

The favorite color					
Color	Tally				
Red	####				
Yellow	####				
Black	1111				
White	###1				
Green	##				

4. The following data shows the walking distance of four friends in two different days

Day Name	Martha	Angy	Roqia	Lores	Neven
First day	2 1/2	1	2 3/4	2	2 3/4
Second day	2 1/4	1 1/2	2 1/4	2 1/4	3

Represent this data by using a double bar graph, then answer the following questions.

- a. Who walked the same distance as Martha in the second day?
- b. What is the difference between the tallest distance and the shortest distance in the first day?

Cumulative Assessments on UNIT 9

Cumulative Assessment

8

Till lesson 1 unit 9

1. Choose the correct answer.

a.
$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$$

A. $\frac{2}{7}$

B. $\frac{3}{7}$

 $C. \frac{4}{7}$

D. 5

b. The model which represents $\frac{3}{4}$ is



В.

c. _____

D. ____

c. $4+5 \times 2 =$

A. 14

B. 18

C. 20

D. 24

d. 1=

A. $\frac{5}{7}$

B. $\frac{7}{7}$

c. $\frac{1}{2}$

D. $\frac{1}{10}$

2. Put (/) to the correct statement and (X) to the incorrect statement.

a. Two fifth
$$=\frac{2}{5} + \frac{2}{5}$$

()

b.
$$31 \div 5 = 6R2$$

(

c.
$$[3+4] \times 3 = 21$$

1

d.
$$\frac{5}{9} = \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9}$$

()

Decompose the following proper fractions in two ways.

First way

Second way

a.
$$\frac{3}{4}$$

$$\frac{3}{4} =$$

b.
$$\frac{4}{5}$$

$$\frac{4}{5} = -$$

4 :

4. There are 288 tourists divided into equal groups. If each group has 8 tourists, how many groups will there be?



Till lesson 2 unit 9

Choose the correct answer.

a. Which of the following is a mixed number?

A.
$$\frac{3}{5}$$

B.
$$\frac{4}{3}$$

C.
$$3\frac{1}{2}$$

D.
$$\frac{1}{4}$$

b.
$$7\frac{1}{5} =$$

A.
$$\frac{36}{5}$$

B.
$$\frac{35}{3}$$

$$c. \frac{13}{5}$$

D.
$$\frac{35}{7}$$

d. Which of the following has the same value as $\frac{5}{7}$?

A.
$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$

B.
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$$

C.
$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$

e. $5,600 \div 7 =$

D.
$$\frac{1}{7} + \frac{2}{7} + \frac{3}{7} + \frac{4}{7} + \frac{5}{7}$$

f. If
$$96 \times 7 = 672$$
, then $672 \div 7 = 672$

2. Write each mixed number as an improper fraction.

a.
$$5\frac{7}{8}$$

b.
$$3\frac{2}{7}$$

c.
$$2\frac{5}{9}$$

3. Write each improper fraction as a mixed number.

a.
$$\frac{7}{3}$$

b.
$$\frac{18}{5}$$

c.
$$\frac{27}{4}$$

4. Match.

a.
$$\frac{2}{5} + \frac{1}{5}$$

b.
$$2\frac{1}{5}$$

c.
$$\frac{9}{9}$$

d.
$$[7+1] \div 8 - 1$$





1. Solve each of the following. You may draw models to help.

a.
$$4\frac{2}{5} + 3\frac{3}{5}$$

c.
$$4-2\frac{1}{4}$$

e.
$$1 - \frac{2}{9} - \frac{4}{9}$$

b.
$$4\frac{4}{7} - 2\frac{2}{7}$$

d.
$$1+2+\frac{3}{8}+\frac{4}{8}+\frac{3}{8}$$

f.
$$\frac{4}{5} + 2\frac{1}{5}$$

2. Complete.

a.
$$7\frac{5}{7}$$
 = $3\frac{1}{7}$

$$e. \frac{8}{} = 2$$

 $-4\frac{1}{3}=3\frac{2}{3}$

f.
$$4\frac{2}{3} = \frac{1}{3}$$

3. a. Find the quotient.

$$2.3.168 \div 6$$

b. Solve the problem. show your work.

$$2.24 + [8 - 5] \times 6$$

- 4. Petra has $5\frac{3}{4}$ cakes, she gave $3\frac{1}{4}$ to her brother. How many cakes left does she has?
- Put (/) to the correct statement and (X) to the incorrect statement.

a.
$$25 + 25 + 25 - 14 = 25 \times 25 \times 25 - 14$$

b.
$$4 - \frac{1}{6} = 3\frac{5}{6}$$

c.
$$\frac{8}{3} = 2\frac{2}{3}$$

d.
$$\frac{5}{9} = \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9}$$

f.
$$320 \div 1 = 40 \times 8$$

11

Till lesson 4 unit 9

Compare. Write (>, < or =).

a.
$$\frac{3}{7}$$
 $\frac{3}{8}$

c.
$$\frac{7}{9}$$
 $\frac{1}{9}$

e.
$$\frac{4}{11}$$
 $\frac{4}{7}$

g.
$$\frac{2}{9}$$
 $\frac{2}{5}$

b. $\frac{5}{8}$ $\frac{7}{8}$

d.
$$\frac{5}{7}$$
 $\frac{3}{7}$

f.
$$\frac{2}{5}$$
 $\frac{1}{5}$

h.
$$\frac{2}{3}$$
 () 1

2. Choose the correct answer.

a.
$$20 - 5 \times 3 =$$

b.
$$\frac{3}{8}$$
 >

A.
$$\frac{5}{8}$$

D.
$$\frac{7}{8}$$

c.
$$3\frac{1}{4} =$$

c. $3\frac{1}{4}$ = [as an improper fraction]

A.
$$\frac{13}{3}$$

B.
$$\frac{13}{4}$$

D.
$$\frac{8}{4}$$

A.
$$\frac{5}{8}$$

D.
$$\frac{5}{10}$$

e.
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$$

A.
$$\frac{3}{5}$$
 B. $\frac{3}{15}$

c.
$$\frac{1}{15}$$

D.
$$\frac{3}{25}$$

3. a. Order the following fractions in an ascending order.

$$\frac{7}{10}$$
, $\frac{3}{10}$, $\frac{1}{10}$, $\frac{9}{10}$, $\frac{6}{10}$

b. Order the following fractions in a descending order.

$$\frac{11}{7}$$
, $\frac{11}{3}$, $\frac{11}{5}$, $\frac{11}{8}$, $\frac{11}{4}$

4. Solve the problems.

c.
$$\frac{3}{9} + \frac{6}{9}$$

1. Write the missing numerator or denominator.

a.
$$\frac{2}{3} = \frac{\Box}{6}$$



b.
$$\frac{5}{8} = \frac{10}{11}$$

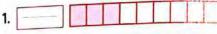


c.
$$\frac{3}{5} = \frac{1}{15}$$

		1		1
1	-		-	
			1	

2. Write each fraction which represent the colored part, then match the equivalent fraction.

¥ 1		
	2	



Choose the correct answer.

b.
$$\frac{3}{1} = 1$$

c. $\frac{19}{4}$ = — (as a mixed number)

A.
$$4\frac{3}{4}$$
 B. $4\frac{1}{4}$

B.
$$4\frac{1}{4}$$

C.
$$5\frac{1}{4}$$

D.
$$3\frac{3}{4}$$

d.
$$3+\frac{2}{7}+5+\frac{2}{7}=$$

A.
$$8\frac{2}{7}$$

B.
$$8\frac{2}{14}$$

C.
$$8\frac{4}{7}$$

D.
$$8\frac{5}{7}$$

4. Sara ate $1\frac{1}{3}$ of the chocolate cake and her brother Adel ate $\frac{4}{3}$ of cake of the same size. Draw and color a model to each one of them.

then show who ate more of cake Sara or Adel?



Till lesson 6 unit 9

1. Write (< , > or =). (using benchmark fractions)

a.
$$\frac{7}{8}$$
 $\frac{1}{2}$

b.
$$\frac{3}{4}$$
 1

c.
$$\frac{3}{5}$$
 $\frac{3}{9}$

d.
$$1\frac{1}{2}$$
 1

e.
$$\frac{5}{6}$$
 $\frac{1}{8}$

- f. $\frac{5}{10}$ $\frac{7}{12}$
- 2. Find the result of each of the following.

c.
$$25 + 4 \times 2$$

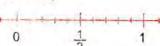
d.
$$5-2\frac{3}{4}$$

e.
$$7\frac{2}{7} + \frac{4}{7}$$

3. Write weather the fraction is closest to $0.\frac{1}{2}$ or 1 (use the number line.)



b.
$$\frac{9}{10}$$



c.
$$\frac{1}{10}$$

- d. $\frac{6}{10}$
- **4.** Use benchmark fractions $0, \frac{1}{2}$ and 1 to order each group of fractions.

a.
$$\frac{1}{7}, \frac{8}{8}, \frac{5}{6}$$

(from the least to the greatest)

b.
$$\frac{5}{6}, \frac{1}{9}, \frac{7}{7}, \frac{5}{10}$$

(from the greatest to the least)

5. Put (1) to the correct statement and (X) to the incorrect statement.

a.
$$\frac{6}{10} > \frac{7}{8}$$

b.
$$\frac{3}{4} < \frac{1}{2}$$

c.
$$30 \div 4 = 7R2$$

d.
$$\frac{31}{10} = 1\frac{3}{10}$$

e.
$$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{3}{8}$$

e. 18 hundreds
$$\div$$
 6 = 8 tens

14

Till lesson 7 unit 9

Write three equivalent fractions to each fraction.

a.
$$\frac{2}{3}$$
 = = = = =

b.
$$\frac{5}{10}$$
 =

b.
$$\frac{5}{10} = = =$$

a.
$$\frac{5}{3}$$
 c. $\frac{6}{18}$ = $\frac{1}{3}$ = $\frac{1}{3}$ d. $\frac{4}{7}$ = $\frac{1}{3}$

$$\frac{4}{7} =$$

f.
$$\frac{12}{20}$$
 =

2. Choose the correct answer.

a.
$$\frac{5}{7} < ----$$

c. $\frac{1}{2}$

D. $\frac{1}{9}$

b.
$$\frac{3}{9} + \frac{1}{9} + 2 =$$
A. $2\frac{4}{9}$
B. $2\frac{4}{18}$

A.
$$2\frac{4}{9}$$

B.
$$2\frac{4}{18}$$

D.
$$2\frac{3}{9}$$

A.
$$\frac{20}{4}$$
 B. $\frac{22}{4}$

B.
$$\frac{22}{4}$$

c.
$$\frac{21}{4}$$

D.
$$\frac{19}{4}$$

d.
$$5-2\frac{1}{5}=$$

A.
$$2\frac{1}{5}$$
 B. $3\frac{1}{5}$

B.
$$3\frac{1}{5}$$

c.
$$2\frac{4}{5}$$

D.
$$2\frac{3}{5}$$

e.
$$\frac{3}{7}$$
 is equivalent to

A.
$$\frac{6}{21}$$
 B. $\frac{9}{14}$

c.
$$\frac{9}{21}$$

D.
$$\frac{9}{28}$$

- Put (1) for the correct statement and (X) for the incorrect statement.
 - a. 1 is the identity element in the multiplication operation.

b. The two fraction
$$\frac{3}{4}$$
 and $\frac{21}{28}$ are not equivalent.

c.
$$47 \div 3 = 15 R1$$

d.
$$8 + 2 \times 9 = 26$$

4. Ahmed have 12 cakes. $\frac{3}{4}$ of them are choclete. How many choclate cake are there.

15

Till lesson 8 unit 9

Choose the correct answer.

A.
$$\frac{7}{4}$$

B.
$$\frac{7}{28}$$

c.
$$\frac{1}{28}$$

D.
$$7\frac{1}{4}$$

c.
$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = -$$

A.
$$\frac{5}{3}$$

A.
$$\frac{5}{3}$$
 B. $\frac{1}{3} \times 4$

C.
$$\frac{4}{12}$$

D.
$$\frac{1}{12}$$

d.
$$1+\frac{2}{7}+\frac{1}{7}+3=$$

A.
$$\frac{7}{7}$$
 B. $\frac{6}{7}$

B.
$$\frac{6}{7}$$

c.
$$7\frac{3}{7}$$

D.
$$4\frac{3}{7}$$

2. Complete.

a.
$$\frac{43}{5}$$
 =

a. $\frac{43}{5} =$ [as a mixed number] b. $7\frac{2}{5} - 1\frac{1}{5} =$

b.
$$7\frac{2}{5} - 1\frac{1}{5} =$$

c.
$$\frac{5}{9} = \frac{1}{27}$$

d.
$$7+5\times2-1=$$

Compare the following using (>, < or =).

a.
$$6 \times \frac{1}{4}$$
 $\frac{2}{4} + \frac{3}{4}$

c.
$$\frac{13}{7}$$
 $\frac{11}{7}$

d.
$$\frac{1}{2}$$
 \bigcirc $2 \times \frac{1}{7}$

- 4. How many $\frac{1}{7}$ long wooden pegs can be cut from a plank that is $\frac{6}{7}$ m long?
- 5. Write the multiplication sentence for each of the following.

a.
$$\frac{1}{4} + \frac{1}{4}$$

b.
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$$

c.
$$\frac{1}{9} + \frac{1}{9} + \frac{1}{9}$$

d.
$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$$

Choose the correct answer.

a.
$$1\frac{4}{7} + 5\frac{2}{7} =$$

A.
$$6\frac{6}{14}$$
 B. $6\frac{8}{7}$

B.
$$6\frac{8}{7}$$

D.
$$7\frac{6}{7}$$

b.
$$\frac{13}{7}$$
 $\frac{13}{5}$

e.
$$\frac{3}{4}$$
=

A.
$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$
 B. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ C. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ D. $\frac{3}{4} + \frac{3}{4} + \frac{3}{4}$

B.
$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$$

$$c. \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$

D.
$$\frac{3}{4} + \frac{3}{4} + \frac{3}{4}$$

2. Complete.

a.
$$3\frac{1}{8} + \frac{5}{8}$$

c.
$$7 \times \frac{1}{9} =$$

e.
$$\frac{2}{7} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2}$$

b. $3\frac{2}{5} =$ [as an improper fraction] **d.** $\frac{7}{8} = \frac{21}{10}$

d.
$$\frac{7}{8} = \frac{21}{1}$$

3. Rania lost $\frac{1}{10}$ of the marbles while she is on the court. She lost another $\frac{8}{10}$ on her way to

What is the proper fraction that represents the marbles lost from her?

4. Ahmed has a homework consisting of eight problems. He finished solving $\frac{1}{8}$ of it before returning home. When he came home, he completed $\frac{5}{8}$ of it. What fraction represents the remainder of the homework?

Cumulative Assessments on UNIT 10

Cumulative Assessment

Till lesson 1 unit 10

Write each of the following as a decimal.

a.
$$\frac{8}{100}$$
 =

b.
$$\frac{3}{10}$$
 =

c.
$$\frac{15}{100}$$
 =

d.
$$\frac{35}{100}$$
 =

e.
$$\frac{1}{100}$$
 =

f.
$$\frac{7}{10} =$$

2. Write each of the following as a fraction.

e.
$$0.4 =$$

3. Put (\checkmark) to the correct statement and (X) to the incorrect statement.

a.
$$7 \times (5-2) = 21$$

b.
$$0.2 = \frac{2}{100}$$

c.
$$\frac{3}{5} + \frac{1}{5} = \frac{4}{10}$$

d.
$$7 \times \frac{1}{10} = \frac{7}{10}$$

4. Complete.

a.
$$\frac{42}{9}$$
 =

a.
$$\frac{42}{8} =$$
 [as a mixed number] **b.** $-1\frac{2}{5} = 3\frac{1}{5}$

c.
$$2\frac{3}{4} - \frac{1}{4} = -$$

d.
$$\frac{5}{5} = \frac{-}{9}$$

5. Ahmed placed 24 paints equally on 8 tables. How many paints were placed on each table?

18

Till lesson 2 unit 10

1. Write the value and the place value of the circled digit in each of the following.

a. 7.45

b. 13.73

c. 451.7

d. 202.94

2. Write in word form.

a. 7.18

b. 1 + 0.7 + 0.03

c. 6 ones and 2 hundredths

3. Write in standard form.

a. 5 + 0.6 + 0.02

b. Seven and eight hundredths

c. 4 Ones, 7 Tenths and 4 Hundredths

4. Put (/) to the correct statement and (X) to the incorrect statement.

a. The place value of the digit 8 in the number 19.28 is Hundredths.

b. $\frac{3}{6} = \frac{5}{20}$

c. $\frac{5}{3} > \frac{5}{6}$

d. $3 \times \frac{1}{5} = \frac{3}{15}$

e. $89 + 2 - 4 \times 3 = 261$

f. $\frac{1}{100} = 0.01$

5. Find the result of each of the following.

a.
$$\frac{4}{9} + \frac{1}{9} + 1 + \frac{2}{9} =$$

b. 7,851 – 475 =

c. $525 \div 3 =$

d. 4,789 + 9,321 =

19

Till lesson 3 unit 10

1. Write each of the following in a fraction form.

d. 2.05 =

2. Complete.

f.
$$\frac{735}{100}$$
 = Hundredths

3. Match.

d.

a.
$$3\frac{8}{10}$$

b.
$$2\frac{1}{5}+1\frac{2}{5}$$

38 Hundredths

4.
$$3\frac{3}{5}$$

5. three and eight tenths

- 4. Write the fractions: $\frac{5}{10}$, $\frac{5}{12}$, $\frac{5}{11}$, $\frac{5}{15}$, $\frac{5}{7}$ in an ascending order.
- 5. Mervat has a brother of height $70\frac{2}{10}$ cm.
 - · Express the height in the form of a decimal.
 - How can you rewrite $70\frac{2}{10}$ cm using tenths only?

20

Till lesson 4 unit 10

Write an equivalent fraction for each.

a.
$$\frac{3}{10} =$$

b.
$$\frac{70}{100}$$
 =

c.
$$\frac{5}{10}$$
 =

d.
$$\frac{90}{100}$$
 =

e.
$$\frac{8}{10}$$
 =

f.
$$\frac{10}{100}$$
 =

2. Choose the correct answer.

a.
$$\frac{7}{9} + \frac{2}{9} =$$

A. 1

B.
$$\frac{9}{18}$$

c. $\frac{1}{2}$

D.
$$\frac{5}{9}$$

b. $6 \times (2-1) =$

B. 11

C.7

D. 6

c. 7 Tenths is equivalent to

B.
$$\frac{7}{100}$$

C. 0.07

D. $\frac{77}{100}$

d. Which of the following is not equivalent to $1\frac{3}{10}$?

D.
$$1\frac{30}{100}$$

e.
$$3\frac{2}{7}$$
 =

[as an improper fraction]

A.
$$\frac{42}{7}$$

B.
$$\frac{21}{3}$$

c.
$$\frac{13}{7}$$

D.
$$\frac{23}{7}$$

3. Complete.

a.
$$7\frac{2}{9}$$
 +

$$= 8\frac{1}{9}$$

b. 2.19 =

Hundredths.

c.
$$\frac{3}{8} = \frac{18}{18}$$

e.
$$\frac{3}{10}$$
 is equivalent to

- d. 77 ÷ 8 =
- 4. Write in expanded form each of the following.

- b. Six and four hundredths
- c. 4 Ones, 8 Tenths and 9 Hundredths



Till lesson 5 unit 10

1. Use (>, < or =) to compare.

d.
$$\frac{7}{10}$$
 0.64

2. Put (1) to the correct statement and (X) to the incorrect statement.

b.
$$5.03 < 5 + 0.3$$

c.
$$24 \div 7 = 3R3$$

d.
$$\frac{7}{100} = 0.7$$

e.
$$5 \times \frac{1}{4} = \frac{5}{20}$$

f.
$$\frac{3}{4} > \frac{3}{5}$$



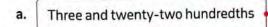
3 9

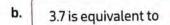
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3. A rectangle of length 7 $\frac{1}{6}$ cm and width 2 $\frac{1}{6}$ cm Calculate its perimeter.

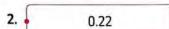
4. Nermine ate 0.7 of her food. Her brother at $\frac{3}{10}$ of his food. Who ate more ?

5. Join.





c.
$$2\frac{1}{11} + 1\frac{1}{11}$$



23

1. Find the result.

a.
$$2\frac{5}{10} + 3\frac{21}{100} =$$

c.
$$2\frac{3}{5} + 7\frac{1}{5} =$$

b.
$$\frac{2}{10} + \frac{21}{100} + 2\frac{5}{10} =$$

d.
$$\frac{32}{100} + \frac{24}{100} + \frac{7}{10} =$$

2. Complete.

a.
$$\frac{40}{100} = \frac{10}{10}$$

c.
$$\frac{9}{}$$
 = 1

e.
$$8\frac{7}{9}$$
 = $2\frac{1}{9}$

$$=2\frac{1}{9}$$

- (in word form)
- b. 7.27 =d. $2 \frac{1}{3} =$

f. The place value of the digit 7 in the number 13.57 is

3. Choose the correct answer.

a.
$$\frac{7}{10} + \frac{2}{10} = \frac{1}{100}$$

- B. 90
- C. 5
- D. 50

b. $\frac{3}{10} + \frac{7}{10} = -$

A.
$$\frac{10}{100}$$
 B. $\frac{1}{10}$

B.
$$\frac{1}{10}$$

D. 1

c. $\frac{7}{8}$ >

A.
$$\frac{8}{8}$$
 B. $\frac{1}{2}$

B.
$$\frac{1}{2}$$

C.
$$1\frac{1}{4}$$

D. $\frac{7}{10}$

d. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} =$

A.
$$\frac{5}{8}$$

B.
$$\frac{5}{40}$$

- e. 3×6÷9=
 - A. 1
- B. 2
- C. $3\frac{1}{3}$
- D. $3\frac{2}{3}$
- 4. Amany has $\frac{7}{10}$ meter of cloth, she went to shop and bought $\frac{35}{100}$ meter cloth. How much cloth Amany has now?

Cumulative Assessments on UNIT 11

Cumulative Assessment

Till lesson 1 unit 11

70 60

Number of items

- 1. Choose the correct answer.
 - a. The opposite graph shows
 - A. pictograph.
 - B. line plot.
 - C. bar graph.
 - D. double bar graph.



- A. 0.3
- B. 0.03
- C.3

D. 30

Sold items

Books

Itama

2020

2021

c.
$$3\frac{1}{3}+1\frac{1}{3}=$$

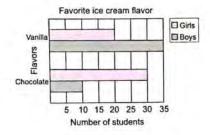
- A. $4\frac{2}{3}$ B. $4\frac{2}{6}$
- c. $2\frac{2}{6}$
- D. $2\frac{2}{3}$

- d. $\frac{7}{9}$ 1
 - A. >
- B. <
- C. =
- e. Five and one hundredths =
 - A. 5.1
- B. 51
- C. 5.01
- D. $5\frac{1}{10}$

- Put () to the correct statement and (X) to the incorrect statement.
 - a. In the opposite double bar graph, the difference of the number of boys between vanilla and chocolate) is 15 boys.



- c. $\frac{6}{10}$ is equivalent to $\frac{60}{10}$
- $d.\frac{5}{11} > \frac{5}{3}$
- e. $7 \times \frac{1}{8} = \frac{7}{8}$

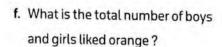


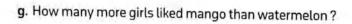
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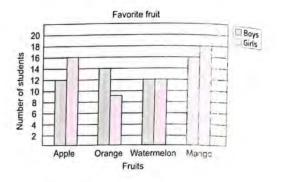
3. Arrange in an ascending order.

 $\frac{7}{9}$, $\frac{5}{9}$, $\frac{4}{9}$, $\frac{6}{9}$, $\frac{2}{9}$

- 4. The following data shows the favorite fruit between boys and girls. Observe the double bar graph, then answer the questions.
 - a. How many boys liked orange?
 - b. How many girls liked apple?
 - c. Which fruit is liked the most?
 - d. Which fruit is liked the least?
 - e. Which fruit shows the same number of boys and girls?





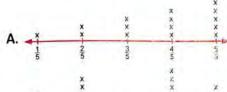


Till lesson 2 unit 11

1. Choose the correct answer.

a. The line plot which shows the following data that shows the walking distance each day for 15 students in kilometers

45







- b. Fifty-seven Hundredths in standard form is
 - A. 5.7
- B. 0.57
- C. 57
- D. 0.75

- c. $\frac{8}{10} = \frac{4}{10}$
 - A. 20
- B. 10
- C. 5
- D. 2

- d. $0(-)^{\frac{2}{7}}$
 - A. >
- B. <
- C. =
- **e.** Which of the following fractions is less than $\frac{1}{2}$?
 - A. $\frac{7}{7}$
- c. $\frac{1}{4}$
- D. $\frac{4}{8}$

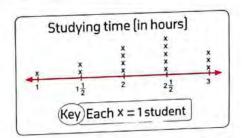
f. The model which represents $\frac{5}{6}$ is

A.

B.

C.

- D.
- Put () to the correct statement and (X) to the incorrect statement.
 - a. In the opposite line plot, the number of students which study 2 hours or more is 8 students.



UNIT 11

()

b. 70 Tenths is equivalent to 0.7

c.
$$\frac{34}{100} + \frac{4}{10} = \frac{38}{100}$$

()

d. 0.7 > 0.67

()

()

3. Find the result.

c.
$$3\frac{1}{4} - 2\frac{3}{4} =$$

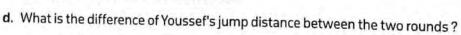
d.
$$75 - 50 + 15 \div 3 =$$

4. The following data shows the jump distances for 5 students (in meters) in two rounds.

Name Rounds	Noura	Maged	Sama	Youssef	Ramy
1 st Round	1/4	1 1/4	1 3/4	1 3/4	$1\frac{1}{2}$
2 nd Round	3 4	1 1/2	2	2 1/4	1

Represent these data, then answer the questions.

- a. Which student jumped the highest distance in the first round?
- b. Which student jumped the highest distance in the second round?
- c. Which student jumped less distance in the second round than the first round?





Till lesson 3 unit 11

Choose the correct answer.

- a. The graph which represents the data of marks of 3 students in two different subjects is
 - A. bar graph
- B. line plot
- C. pictograph
- D. double bar graph
- **b.** Which equation of the following represents $\frac{7}{8}$?
 - A. $\frac{1}{8} + \frac{1}{8} + \frac{4}{8}$ B. $\frac{3}{8} + \frac{4}{8}$
- $c. \frac{7}{4} + \frac{7}{4}$
- D. $\frac{7}{8} + \frac{1}{8}$

- c. 10.3 = - Tenths.
 - A. 10.3
- B. 103
- C. 1030
- D. 1.03

- 3 Ones and 5 Tenths d. 3.05
 - A. >
- B. <
- C. =

- e. 2,022 ÷ 2 =
 - A. 111
- B. 1,110
- C. 1,011
- D. 1,101
- f. The graph which uses to show the frequency of data on a number line is
 - A. bar graph.
- B. line plot.
- C. pictograph.
- D. double bar graph.

Put (/) to the correct statement and (X) to the incorrect statement.

a. $\frac{7}{9} < \frac{7}{8}$

b. $2.7 = 2 \frac{7}{100}$

c. $3 \times \frac{1}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

 $d.8+8\times2-5=19$

e. $1\frac{7}{10} = 1\frac{7}{100}$

Order the following fractions in a descending order.

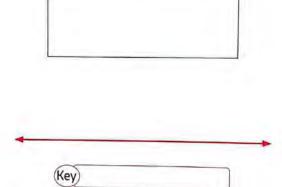
$$\frac{2}{7}$$
, $\frac{2}{5}$, $\frac{2}{9}$, $\frac{2}{4}$, $\frac{2}{10}$

 Petra surveyed her class. She asked them how many hours they spent doing daily chores and then plotted their answers.

Complete the table she organized, represent the data she collected , then answer the questions.

- a. How many students spent for 3 hours ?
- b. What is the time the most students spent?
- c. How many students spent for 2 hours or more?
- d. How many students did surveyed in Petra's data in all?

Hours spent d	oing daily	chores
Number of hours	Tally	Total
1/2		
1		
1 1/2		
2	1111	
2 1/2	#111	
3	#	
3 1/2		
4		
4 1/2		



1. Choose the correct answer.

c. Which of the following is a unit fraction?

A.
$$\frac{2}{3}$$

B.
$$\frac{1}{5}$$

c.
$$\frac{3}{7}$$

D.
$$1\frac{1}{5}$$

f. Which of the following fractions is equivalent to 1?

A.
$$\frac{2}{7}$$

B.
$$1\frac{5}{7}$$

c.
$$\frac{7}{2}$$

D.
$$\frac{7}{7}$$

Write (✓) to the correct statement and (X) to the incorrect statement.

a.
$$73 \div 9 = 8$$
 and the remainder = 1

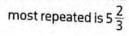
b.
$$60.57 = 60 + 0.5 + 0.7$$

c.
$$\frac{2}{10} + \frac{3}{10} = \frac{50}{100}$$

d.
$$18 \times 2 + 8 - 2 = 18 \times 7$$

e.
$$\frac{5}{3} > 1$$

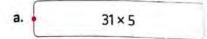
f. The number which is the



3. Complete.

b.
$$\frac{20}{25} = \frac{1}{5}$$

- c. The place value of the digit 0 in the number 10.62 is
- d. $6 \times 2 + 30 \div 6 =$
- e. The numerator of the fraction $\frac{3}{7}$ is
- f. The value of the digit 6 in the number 3.26 is
- 4. Match.



- b. $230 \div 2$
- c. 17,621 - 17,386
- d. $3 + 15 \div 3 + 5$

- 1. 115
- 2. 155
- 3. 13
- 235

- 5. Write (<, > or =).
 - a. 3 + 0.03 + 0.3
- 3.33
- b. 24 tenths
- 24 hundredths

c. 5.2

- 5.20

d. $3\frac{7}{100}$

- 3.7
- 6. Giovanni is reading a book of 120 pages. If he reads 6 pages per day, how long will it take him to finish the book?
- 7. Find :

a.
$$3\frac{2}{5} - 2\frac{1}{5}$$

b.
$$2\frac{4}{7} + 1\frac{3}{7}$$

b.
$$2\frac{4}{7} + 1\frac{3}{7}$$
 c. $2\frac{1}{10} + \frac{1}{100}$

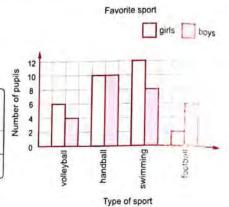
Final Assessments

8. Answer each of the following as required.

- 9. By using the opposite graph ,answer the following questions:
 - a. Complete the table.

sport pupils	volleyball	handball	swimming	football
Boys	4			
Girls	-			2

- b. How many boys prefer swimming?
- c. How many girls prefer volleyball?



1. Choose the correct answer.

a.
$$\frac{73}{10}$$
 = [as a mixed number]

A.
$$70\frac{3}{10}$$

B.
$$10\frac{3}{7}$$

C.
$$7\frac{3}{10}$$

D.
$$7\frac{1}{7}$$

b.
$$\frac{2}{10} =$$

A. 1.2

(as a decimal)

d. In the problem 1,866
$$\div$$
 6 , the quotient is between

A. 100 and 200

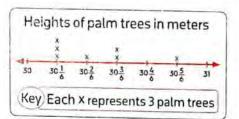
B. 200 and 300

C. 300 and 400

D. 400 and 500

e. The opposite line plot represents the heights of some palm trees in meters. , then the number of all the palm trees in this graph is





2. Write (\checkmark) to the correct statement and (X) to the incorrect statement.

a.
$$\frac{2}{10} + \frac{6}{10} = \frac{8}{20}$$

b.
$$\frac{5}{7} > \frac{1}{2}$$

d. The number of the unit fractions of the fraction
$$\frac{8}{9}$$
 is 8

e.
$$3 + 3 \times 3 - 3 = zero$$

f. If
$$864 \div x = 432$$
, then $x = 2$

3. Complete.

a.
$$3 + 0.03 + 0.3 =$$

b.
$$2\frac{1}{6} = -$$

(as an improper fraction)

Final Assessments

- d. 81 + 54 ÷ 6 =
- e. The division problem in the opposite model

is -	
13	

5	5 × 20 = 100	5×5=2	5
	20	5	R3

- 4. Compare, write (< , > or =) for each
 - a. 1

- C
- 0.1

- b. $1\frac{2}{3}$
- 0
- 5/3

- c. $3+1\times5-3$
- 0
- $2+1 \times 5-2$

- d. 370 ÷ 9
- 0
- 370 ÷ 5
- 5. There are 10 beanbags, four of them are blue. What part of the group of beanbags are blue? [Write fraction and decimal]
- 6. Find :
 - a. 7,341 + 1,532

b. 7,000 - 3,499

c. 3,159 ÷ 9

d. 34 × 15

7. Complete the table.

Model	Fraction	Unit fraction	Equation to form the fraction
a	-		-
b.	56		

8. The opposite table shows the heights of some pencil colors with Ramy. Represents this data using a line plot, then answer the following questions.

a.	How many pencils whose heights
	are more than $4\frac{2}{4}$ cm?

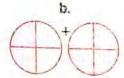
- b. What is the greatest height of the pencils?
- c. What is the smallest height of the pencils?

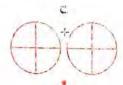
The color	The height in cm
Red	$4\frac{1}{4}$, $4\frac{2}{4}$, $4\frac{3}{4}$
Blue	$4\frac{1}{4}$, $4\frac{3}{4}$, $4\frac{3}{4}$
Green	$4, 5, 4\frac{2}{4}$
Black	$4\frac{1}{4}$, $4\frac{3}{4}$, 5



9. Match.









2.
$$\frac{3}{4}$$

3.
$$\frac{4}{4}$$

4.
$$\frac{2}{4}$$

1. Choose the correct answer.

a. The value of the digit 5 in the number 7.45 is

A. 5

B. 0.5

C. 0.05

Model

D. 50

b. Which is the first step in evaluating $19 - 14 + 2 \times 10 - 5$?

A. 19 - 14

B. 2 × 10

C.14+2

D. 10 - 5

c. 3,500 ÷ = 700

A. 2

B. 3

C. 4

D. 5

d. $3\frac{2}{5}$ = [as an improper fraction]

A. $\frac{17}{3}$

B. $\frac{17}{5}$

c. $\frac{32}{5}$

D. $\frac{32}{3}$

e. ||||=-

A. 53

B. 7

C. 8

D. 35

f. $23 \div 5 = 4 R$

A. 1

B. 2

C. 3

D. 4

2. Write (1) to the correct statement and (X) to the incorrect statement.

a. $93 \div 3 = 13$

b. $20 \div 5 + 5 = 9$

c. $3\frac{7}{10}$ is equivalent to 3.7

d. $\frac{21}{5} = 4\frac{1}{5}$

e. The suitable way for representing the favorite color for 30 students is the line plot.

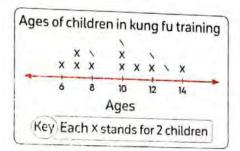
f. $6+5\times2-2=14$

3. Complete.

a. 2.3 =

tenths.

- b. $10 \times 3 + 15 \div 5 =$
- c. $\frac{6}{7} \times \frac{3}{3} =$
- d. 3,200 ÷ = 400
- e. By using the opposite line plot, the number of children whose ages are 10 years old
- f. $3\frac{3}{100}$ = [as a decimal]



4. Match.

- a. 3/5
- b. $\frac{2}{5}$
- c. $3\frac{1}{5}$
- d. 36 5
- e. $1\frac{2}{5}$

- 1. $3-1\frac{3}{5}$
- 2. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
- $3. \cdot 3 + \frac{1}{5}$
- 4. $\frac{2}{5} \times \frac{3}{3}$
- 5. $7\frac{1}{5}$

5. Compare, write (< , > or =) for each

- a. 325 ÷ 7
- 325 ÷ 4

- b. $2+2\times2-2$
- 2-2+2+2

c. $\frac{1}{11}$

- 0
- 56

5.40

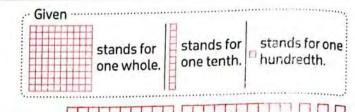
d. 5.4

6. Find the result of each of the following (You can use any strategy you prefer):

c.
$$62 \times 18$$

7. Mathew has 18 apples. Two thirds of the apples are red. How many apples are red?

Using the opposite model, answer each of the following.

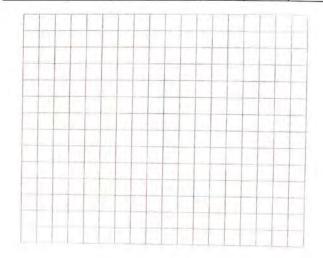


- a. Standard form:
- b. Word form:



9. The following data show the number of hours that Ayman and Nora study in 6 days. Represent this data by using a double bar graph.

Day Name	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.
Ayman	3	4 1/2	3	4 1/2	3 1/2	2
Nora	4	5	21/2	5	4 1/2	3



Model 4

1. Complete.

a. If $2,166 \div 6 = 361$, then the divisor is

tenths.

- b. 9,342 ÷ 3 is closer to
- c. 10 × 3 + 15 ÷ 5 =
- d. $\frac{2}{3} = \frac{1}{9}$
- e. 2.4 =
- f. Five and five hundredths =

2. Write (/) to the correct statement and (X) to the incorrect statement.

- a. Line plot often used when the data shows numbers or measurements.
- b. $2+10-8=3\times4-8$
- c. 320 ÷ 4 = 80 R 3
- d. If 1,095 \div 3 = 365, then the quotient is 365
- e. $\frac{5}{3} = 1\frac{3}{5}$
- f. 1.7 is smaller than 1.69.

3. Choose the correct answer.

a. The following data show the heights of 20 pupils in class 4/A in centimeters

110	111	109	108	100	101	103	105	103	104
102	100	103	105	110	104	106	100	109	103

What is the suitable method of representing this data?

- A. line plot B. bar line C. double bar line
- b. $4 + \frac{4}{3} =$
 - A. $4\frac{1}{3}$ B. $\frac{16}{4}$ C. $\frac{12}{3}$ D. $5\frac{1}{3}$

c. Which of the following fractions is greater than 1?

- A. $\frac{4}{5}$
- c. $\frac{7}{5}$
- D. $\frac{9}{10}$

d. The digit 4 in 15.42 is in

place.

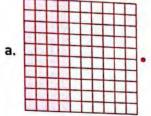
- A. ones
- B. tens
- C. tenth
- D. hundredth

e. The division equation that matches $126 \times 3 = 378$ is

- A. 378 3 = 126 B. 378 + 3 = 126 C. $378 \div 3 = 126$
- **D.** $378 \times 3 = 126$

- f. $4 \div 1 + 8 \times 2 =$
 - A. 20
- B. 24
- C. 1
- D. zero

4. Match.



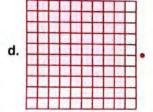
0.90



2. 0.40



3. 0.7



0.5

5. Compare, write (< , > or =).

c.
$$\frac{7}{3}$$

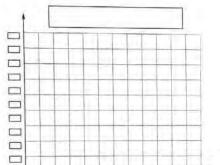
6. Draw a circle around the numbers that equals to 6 ones and 42 hundredths.

7. There are 15 birds on a tree. $\frac{3}{5}$ of them flew away. What is the number of birds that flew away?

8. Find :

9. The following data shows the internet usage for four friends. The data are given to the nearest $\frac{1}{4}$ of hour. Use the following table to complete the bar graph , then answer the questions.

Name	Samer	Amira	Islam	Enas
Number of hours	3 4	21/4	1 1 2	2



- a. Who used the internet the most time?
- b. Who used the internet the least time?
- c. What is the difference between Enas and Samer ?

1. Complete.

- a. 3.2 = 3 +
- b. $3\frac{1}{5} =$

[as an improper fraction]

- c. $\frac{8}{10} = \frac{4}{10}$
- d. 5+8+2=
- e. 13 ÷

= 6R1

f. 27 Hundreds + 9 =

Choose the correct answer.

- a. What is the value of X in the opposite division problem?
 - A. 73
- B. 73 R1
- C. 73 R 2
- D. 73 R 3

- b. What is the difference 70,000 7,777?
 - A. 73,333
- B. 62,223
- C. 77,777
- D. 7

- c. Which of the following is NOT true?
 - A. $\frac{5}{15} = \frac{1}{3}$ B. $\frac{1}{6} = \frac{3}{18}$ C. $\frac{7}{8} = \frac{8}{17}$
- D. $\frac{3}{3} = \frac{4}{4}$

- d. Which fraction is equivalent to 0.3?
 - A. $\frac{30}{10}$
- B. $\frac{3}{100}$
- c. $\frac{3}{10}$

- e. $\frac{2}{10} + \frac{3}{100} = \frac{1}{100}$
 - A. 23
- B. 5
- C. 32
- D. 50
- f. From the opposite tally table, the value of X is
 - A. 6
 - B. 7
 - C. 8
 - D. 9

Name Tally Sum Amgad //// 4 Ola THL 5 Nora ### 10 Alaa X Noha 11 2 Sum 30

put (/) to the correct statement and (X) to the incorrect statement.

a. 1dm = 0.1 m

()

b. The two fractions $\frac{6}{15}$ and $\frac{2}{5}$ are equivalent.

- ()
- c. The fractions $\frac{2}{10}$, $\frac{9}{10}$, $\frac{5}{10}$ are ordered from the least to the greatest.
- ()

d. The quotient of 4 369 is 92 R1

(

e. 5+5×5=50

- 1 1
- f. The best type of graph that represents the following data is a bar graph.

Colors	Red	White	Green	Blue
Boys	25	15	35	10
Girls	30	40	20	45

()

4. Join.

a.
$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$$

, 2

b. Two fifths

2. One

c. $\frac{2}{7} + \frac{3}{7}$

3. $\frac{3}{6}$

d. •

4.

e. One fourth

5. \frac{5}{7}

5. Compare, write (<, > or =).

- a. $\frac{5}{5}$
- 0
- b. $3+3\times3$
- (3+3)×3
- c. 7,241 ÷ 9
- 0
- 7,241 ÷ 4
- d. 11.11
- 1.11

6. Solve the problems using any strategy you choose.

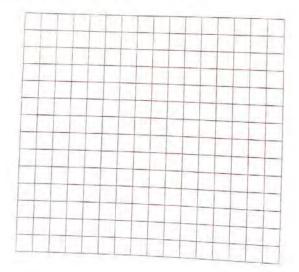
a.
$$7 \times 251 =$$

- 7. Find the perimeter of a square of side length $1\frac{1}{4}$ m.
- 8. Giovanni ate 0.7 of his food, his brother Mathew ate $\frac{9}{10}$ of his food. Who ate more?
- 9. The following data shows the walking distances to the nearest $\frac{1}{4}$ kilometer of four friends in two different days.

Name Day	Nada	Nader	Hady	Sally
First Day	1 1 2	3/4	23/4	2
Second day	13/4	1	11/4	$2\frac{1}{2}$

Represent this data by using a double bar graph, then answer the following questions.

- a. Who walked the tallest distance in first day?
- b. Who walked the shortest distance in second day?





put (/) to the correct statement and (X) to the incorrect statement.

- a. The model represents $\frac{3}{8}$
- b. In the opposite line plot, if it represents the ages of 40 students , then each X stands for 4 students.
- c. 32 Hundredths = 0.32 d. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{1}{7} \times 5$
- e. 715 × 2 = 1,430
- f. 5÷3=1R3

2. Complete.

d.
$$\frac{2}{10} + \frac{24}{100} + \frac{6}{10} =$$

f. 7 Ones, 4 Hundredths and 2 Tenths =

3. Choose the correct answer.

a. Which type of graph is a suitable for the following table?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

A. Double bar graph.

B. Line plot.

C. Bar graph.

Final Assessments

b. The fraction which represents letter E on the following number



- A. $\frac{5}{7}$
- B. $\frac{5}{8}$
- c. $\frac{5}{6}$
- D. $\frac{5}{5}$

- c. 3 + 0.2 + 0.01 = -
 - A. 0.321
- B. 12.3
- C. 3.12
- D. 3.21

- d. 2-2 ÷ 2 =
 - A. 0
- B. 2
- C. 3
- D. 1

- e. 9,342 ÷ 3 is closer to
 - A. 300
- B. 3,000
- C. 4,000
- D. 5,000
- f. Which of the following can be represented by a line plot?
 - A. Our favorite movie.

B. Our heights.

C. Our favorite animal.

- D. Our favorite food.
- 4. Find the result of each of the following.

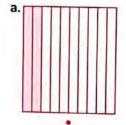
a.
$$3\frac{2}{5} + 1\frac{4}{5} =$$

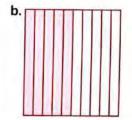
b.
$$3\frac{4}{7} - 1\frac{3}{7} =$$

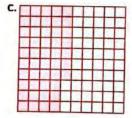
c.
$$4 \times \frac{1}{9} = -$$

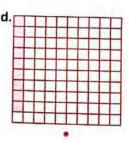
d.
$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = -$$

5. Join each decimal to its representing shape.









- 1. 0.50
- 2. 0.47



4. 0.09

6. Compare , write (< , > or =).

a.
$$3 + 0.3 + 0.03$$

b.
$$4 \times \frac{1}{7}$$

$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$$

33.3

- 7. Elen placed 21 paints equally on 3 tables. How many paints were placed on each table?
- 8. Write the following fractions in the form of improper fraction and mixed number.





improper -

mixed





improper

mixed

9. Scores obtained by the four friends Youssef, Sameh, Noha and Ola in the pre-test and test are given below. Represent these data by a double bar graph.

Students Score			
Name of students	Pre-test	Test	
Youssef	60	70	
Sameh	75	90	
Noha	55	55	
Ola	80	95	

Then , answer the following questions :

- a. How has the greatest score in the pre-test?
- b. What is the smallest score in the test?
- c. How has the same score in the pre-test and the test?

Model

7

1. Choose the correct answer.

A. 1

B. zero

C. 15

D. 55

A. 7

B. 70

C. 700

D. 7,000

c. which of the following is an improper fraction?

A. $3\frac{1}{5}$

B. $\frac{4}{9}$

c. 1/4

D. 4

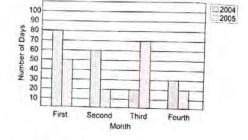
A. $\frac{10}{7}$

B. $\frac{100}{7}$

C. $\frac{7}{100}$

D. $\frac{7}{10}$

e. This double bar graph compares the total number of days students were absent over two academic years. Which month has the greatest difference in the number of days?



A. The first month.

B. The second month.

C. The third month.

- D. The fourth month.
- f. Which of the following can not be represented by a line plot?
 - A. The number of our family members.
 - B. Our shoe sizes.
 - C. Distance between home and school.
 - D. Our favorite activity in our spare time.

2. Complete.

- a. The value of the digit 3 in the number 4.53 is
- b. The improper fraction which represents the model



- c. The quotient of 3,019 \div 3 equals
- d. $8 \times 3 + 6 + 2 =$

e.
$$\frac{3}{10} + \frac{5}{100} =$$

f. If
$$\frac{X}{4} = \frac{2}{8}$$
 then $X =$

put (/) to the correct statement and (X) to the incorrect statement.

a. The place value of the digit 8 in the number 7.85 ± 0.80

b. 10.6 = 1060 hundredths.

c. $\frac{3}{9} + \frac{1}{9} + \frac{1}{9} = \frac{5}{9}$

d. $\frac{9}{5} < \frac{7}{5}$

e. $5 \times 5 - 5 \div 5 = 4$

f. $36 \div 4 = 9$

4. Compare , write (< , > or =)

- a. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ $\frac{4}{12}$
- b. 376 ÷ 9
- - 376 ÷ 7

- c. 0.7
- 0.70
- d. The number of tally ₩ ||

The number of tally

5. Match.

- a.
- $3\frac{1}{5}$

- b.
- 2.7

- C.

 $2\frac{7}{10}$

- d.
- $2\frac{1}{5} + 3\frac{4}{5}$

6

Final Assessments

- 6. Hala has 28 biscuits to give it to her 9 friends.
 How can Hala share the biscuits equally ? What is the left?
- 7. Find :

a.
$$7,654 + 3,271$$

8. Write the required forms for the decimal number 3.27

a. Word form:

b. Unit form:

c. Expanded form:

9. Omar and Malek conducted an experiment. They wanted to see how far their friends could roll a heavy ball. They drew a starting line in the dirt and asked six friends to roll a 10 kilograms ball as far as they could from the starting line. They measured the distance in meters to the nearest $\frac{1}{4}$ meter and record their data in a table.

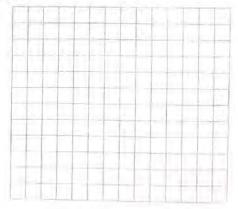
Student	Rana	Salah	Tahani	Ziad	Farouk	Walid
Distance for 10 kg Ball [in m]	$\frac{3}{4}$ m	1 ½ m	1 1 m	2 1/4 m	1 3 m	2 1/2 m

Create a bar graph that shows Omar and Malek's data.

Remember to include all the elements of a bar graph,

then Answer the following questions:

- a. Who has the greatest distance after rolling the ball?
- b. What is the difference between the greatest and smallest distance of rolling the ball?



Model

1. Complete.

a.
$$2\frac{3}{10} + 4\frac{5}{100} =$$

b.
$$5 = \frac{10}{10}$$

d.
$$4\frac{5}{6}+$$
 = $6\frac{5}{6}$

put (/) to the correct statement and (X) to the incorrect statement.

a. We use the picture to represent the data by double bar graph.

b.
$$9+9-9\times 2 = zero$$

c. If
$$36 \div 4 = 9$$
, then: $306 \div 4 = 90$

d.
$$\frac{9}{7}$$
 is a proper fraction.

f.
$$\frac{17}{100} + \frac{5}{10} = \frac{22}{100}$$

3. Choose the correct answer.

a.
$$3\frac{7}{10}$$
 is equivalent to

b.
$$\frac{6}{16} =$$

B.
$$\frac{12}{30}$$

D.
$$\frac{3}{8}$$

c. Which of the following fraction is the greatest?

A.
$$\frac{2}{7}$$

c.
$$\frac{5}{7}$$

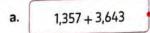
D.
$$\frac{7}{7}$$

d. In the number 325.41, which digit is in the hundredth place?

e. hundreds
$$\div$$
 5 = 20 tens.

Final Assessments

- f. Which of the following can be represented by a double bar graph?
 - A. Sleeping hours every night.
 - B. Favorite food.
 - C. Maximum and minimum temperatures in different cities.
 - D. Length of 5 things on your desk.
- 4. Join.

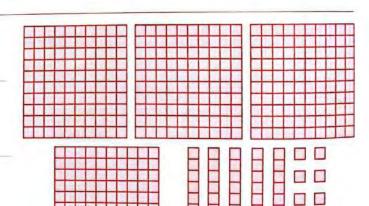


- b. 5,162 3,162
- c. 400
- d. 132

- 1. 2,000
- 2. 5,000
- 3. 396 ÷ 3
- 4. 25 × 16

- 5. Compare, write (<, > or =).
 - a. $\frac{5}{6}$
- c. $\frac{2}{7} + \frac{3}{7}$
- $\frac{6}{7} \frac{1}{7}$

- b. $\frac{3}{10}$
- $\frac{30}{100}$
- d. 214×7
- 214 × 17
- 6. Calculate the area of a square of side length 23 cm.
- 7.
- a. Standard form:
- b. Word form:
- c. Unit form:
- d. Expanded form:



8. Find.

a.
$$2\frac{2}{3} + 1\frac{2}{3}$$

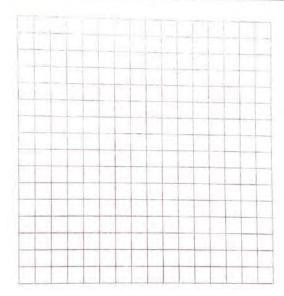
c.
$$\frac{6}{7} \times \frac{5}{5}$$

b.
$$4\frac{1}{5} - 1\frac{4}{5}$$

d.
$$\frac{5}{10} + \frac{3}{100}$$

9. Complete the following table. Use the data and represent it by a double bar graph.

	Our	Favorite F	boo	
Food	Taily table		Total	
	Girls	Boys	Girls	Boys
Chicken	相用	1811		
Meat	H!	311		
Fish	111	Ж		
Other	器用	WII		



Model

Put (/) to the correct statement and (X) to the incorrect statement.

a.
$$\frac{4}{10} + \frac{6}{10} = \frac{10}{20}$$

b. $\frac{7}{10}$ is equivalent to 0.70

- c. 1 cm = 0.01 dm
- d. If the perimeter of a square is 364 cm, then its side length equals 91 cm
- e. 4-4+4=zero
- f. The most occurred number in the opposite line plot is $1\frac{2}{4}$

Choose the correct answer.

- a. Which type of graphs is suitable for this
 - A. double bar graph.
 - B. line plot.

C. bar graph.

Name

Age

- b. 1,836 ÷ 3 is closer to
 - A. 6
- B. 60
- C. 600
- D. 6,000

Ahmed

13

Sally

15

Aola

10

Nora

17

- c. A fraction in which the numerator is greater than or equal the denominator called
 - A. proper fraction.

B. mixed number.

C. unit fraction.

D. improper fraction.

- d. $[3 \times 10] [20 \div 4] =$
 - A. 35
- B. 25
- C. zero
- D. 4
- e. Which choice shows the fractions in a descending order?
 - A. $\frac{3}{10}$, $\frac{3}{9}$, $\frac{3}{7}$, $\frac{3}{5}$, $\frac{3}{3}$
- B. $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$, $\frac{3}{3}$
- c. $\frac{3}{3}$, $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$
- D. $\frac{3}{3}$, $\frac{3}{10}$, $\frac{3}{9}$, $\frac{3}{7}$, $\frac{3}{5}$
- f. The place value of the digit 3 in the number 2.53 is
 - A. Ones.
- B. Tens.
- C. Tenths.
- D. Hundredths.

3. Complete.

- a. The unit form of 4.52 is

b. 5.2 = hundredths.

- c. $\frac{5}{15} = \frac{15}{15}$

d. There are unit fractions that form seven tenths.

- ÷ 2 = 5 R1
- f. $3 \times (5-4) 3 =$

4. Match.

- 15 50 b.
- C.
- 20 70 d.

- 0.3

5. Compare. Write (< , > or =).

- a. 34 tenths
- b. 5 Ones, 5 Hundredths
- $3\frac{4}{10}$ 55 tenths

c. $\frac{3}{10} + \frac{3}{100}$

d. $5\frac{1}{11}$

 $2\frac{21}{36}$

0.33

6. Samir painted $\frac{5}{11}$ of a wall with blue. What is remainder of the wall to be painted?

7. Calculate.

- a. 3,240 1,651 =
- c. $725 \div 9 =$

- b. $3 \times 472 = -$
- d. 7,431 + 5,132 =

8. Arrange each of the following from least to greatest.

a.
$$\frac{5}{10}$$
, $\frac{1}{6}$, $\frac{8}{9}$

b.
$$\frac{11}{12}$$
, $\frac{1}{9}$, $\frac{2}{4}$

9. Use the following data to make a line plot, then answer the questions.

11 kg ,
$$12\frac{1}{4}$$
 kg , $11\frac{3}{4}$ kg , $11\frac{1}{2}$ kg , 12 kg , $11\frac{1}{2}$ kg , $11\frac{1}{4}$ kg , $11\frac{1}{4}$ kg , $11\frac{1}{4}$ kg , $11\frac{1}{2}$ kg , 12 kg

- a. What is the most common record?
- b. What is the least common record?

Model 10

1. Complete.

b.
$$15 \div 3 + 4 + 1 =$$

c. The expanded form of two and fifty hundredths is

$$d. \frac{9}{} = 1$$

$$f. \frac{2}{5} \times \frac{3}{3} =$$

- Put (/) to the correct statement and (X) to the incorrect statement.
 - a. The type of graph which is suitable for this data is a line plot.

1	1	3	2	5	1	4	
-	3	2	4	1	3	1	,
-	2	1	3	4	1	5	1.

h			
Ь.			
	_		

represents four tenths.

-		- 1
		1

c. $2+8 \div 2=5$

- ()
- **d**. The number , not including the remainder , that results from dividing is called quotient.
- ()

e. Fractions that name the same a mount are unit fractions.

1 1

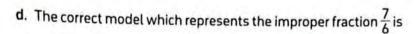
f. The place value of the digits 5 in the number 37.56 is 0.5

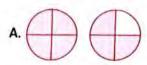
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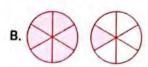
- Choose the correct answer.
 - a. In the number 21.45, which digit is in the tenths place?
 - A. 2
- B. 1

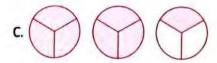
- C. 4
- D. 5

- b. $\frac{21}{5}$ = [as a mixed number]
 - A. $5\frac{1}{4}$
- B. $4\frac{1}{5}$
- c. $2\frac{1}{5}$
- D. $\frac{5}{21}$
- c. Which of the following is not equivalent to $1\frac{10}{100}$?
 - A. 1.1
- B. 1.10
- C. 1.01
- D. $1\frac{1}{10}$











e. Which of the following sentences is wrong?

A.
$$\frac{1}{3} > \frac{1}{4}$$

B.
$$\frac{1}{4} > \frac{1}{5}$$

C.
$$\frac{1}{5} < \frac{1}{6}$$

D.
$$\frac{1}{8} < \frac{1}{7}$$

- f. Which of the following can not be represented by a line plot?
 - A. The number of family members.
- B. Distance between home and school.

C. Our shoe sizes.

- D. Our favorite activity in our spare time.
- 4. Compare, write (< , = or >).

a.
$$\frac{5}{7}$$

b.
$$3+3\times3-3$$

c.
$$7 \times \frac{1}{10}$$

$$\frac{7}{70}$$

d.
$$3 + 0.2 + 0.01$$

5. Join.

a.
$$2\frac{1}{5} + 1\frac{4}{5}$$

b.
$$1-\frac{3}{5}$$

c.
$$\frac{2}{10} + \frac{2}{100}$$

d.
$$3 \times \frac{1}{5}$$





- 6. Find the Area of a rectangle with 15 m. long and 11 m. wide.
- 7. Pola was training for the race on Monday he ran for $\frac{7}{10}$ km., on Tuesday he ran for $\frac{25}{100}$ km. What is the total distance did he run in all?
- 8. Use place value chart to compare :

a.	0.80	0.0
a.	0.80	0.0

Ones	decimal point	Tenths	Hundredths
-	•		

b. 0.10 0.1

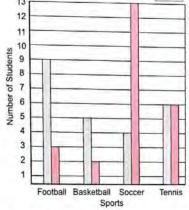
Ones	decimal point	Tenths	Hundredths
	•	1265	_

Ahmed took a survey of his classmates to find their favorite sports. He recorded the data in a double bar graph. Use Ahmed's data to complete the table.

Favo	rite spor	ts
Sport	Boys	Girls
Football		
Basketball		
Soccer		
Tennis		

Use the graph to answer the questions.

- a. How many more boys than girls chose basketball?
- b. How many students liked football the most?



- c. For which sport is there the greatest difference between boys and girls?
- d. Which is the least popular sport?

Composing and Decomposing Fractions

Exercise 8

- 1. a. 2,1, half, 1
 - b. 3,1, third, 1
 - c. 4,1, quarter or fourth, $\frac{1}{4}$
 - d. 5,1, fifth, 1
 - e. 6 .1 . sixth . 1
 - f. 8 , 1 , eighth , 1
- 2. a. a number that names a part of a whole or part of a group.
 - b. the number above the bar in a fraction that tells how many equal parts have been counted.
 - c. The number below the bar in a fraction that tells how many equal parts there are.
 - d. a fraction has a numerator of 1
 - e. a fraction its numerator is less than its denominator.



- C. \frac{1}{4} \frac{1}{4} \frac{1}{4} \frac{1}{4}
- 4. a. 3 b. 6 d. 5
 - e. 3

c. 4

f. 7

- 5.
- a. $\frac{3}{4}$
- $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$
- b. 2
 - $\frac{2}{3} = \frac{1}{3} + \frac{1}{3}$
- c. $\frac{7}{10}$
 - $\frac{7}{10} = \frac{1}{10} + \frac{1}{10}$
- $d, \frac{6}{8}$
 - $\frac{6}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
- $e. \frac{8}{16}$

$$\frac{8}{16} = \frac{1}{16} + \frac{1}{16}$$

f. 5

$$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

6. a. Fraction: 2

Unit fraction: 1

Equation: $\frac{1}{4} + \frac{1}{4}$

b. Model:



Unit fraction:

Equation: $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

- c. Fraction: 3 Equation: $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
- d. Model:



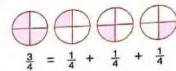
Fraction: 2/3

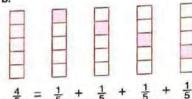
Unit fraction: $\frac{1}{3}$

- d. 2 c. 3 b. 2 7. a.5
- $a.\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$
- $b.\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ $c.\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$
- $d.\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

- $b.\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$
- $c.\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
- $d.\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
- e. 1 + 1 6
- f. 10 + 10 + 10
- 10.
- $a.\frac{3}{5} = \frac{1}{5} + \frac{2}{5}, \frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
- b. $\frac{7}{8} = \frac{2}{8} + \frac{5}{8}$, $\frac{7}{8} = \frac{1}{8} + \frac{2}{8} + \frac{4}{8}$
- $c.\frac{5}{6} = \frac{2}{6} + \frac{3}{6}, \frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$
- d. $\frac{4}{9} = \frac{2}{9} + \frac{2}{9}$, $\frac{4}{9} = \frac{1}{9} + \frac{1}{9} + \frac{2}{9}$

- e. $\frac{4}{7} = \frac{1}{7} + \frac{3}{7}$, $\frac{4}{7} = \frac{2}{7} + \frac{2}{7}$
- $f. \frac{5}{8} = \frac{1}{8} + \frac{2}{8} + \frac{2}{8}, \frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
- g. $\frac{6}{10} = \frac{3}{10} + \frac{3}{10}$, $\frac{6}{10} = \frac{1}{10} + \frac{5}{10}$ (Answers may vary)
- 11.





a. $\frac{9}{12} = \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$ $+\frac{1}{12}+\frac{1}{12}+\frac{1}{12}$

- $\frac{9}{12} = \frac{4}{12} + \frac{5}{12}$
- $\frac{9}{12} = \frac{3}{12} + \frac{3}{12} + \frac{3}{12}$
- b. $\frac{12}{15} = \frac{7}{15} + \frac{5}{15}$
- $\frac{12}{15} = \frac{2}{15} + \frac{5}{15} + \frac{5}{15}$
- $\frac{12}{15} = \frac{10}{15} + \frac{2}{15}$

 $c. \frac{7}{8}$

$$\frac{7}{8} = \frac{6}{8} + \frac{1}{8}$$

$$\frac{7}{8} = \frac{2}{8} + \frac{1}{8} + \frac{4}{8}$$

 $d.\frac{6}{10}$

$$\frac{6}{10} = \frac{5}{10} + \frac{1}{10}$$

$$\frac{6}{10} = \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{3}{10}$$

(Answers may vary)

13.

14.	a. x	b. ~	c. x	d. v
	0 X	f .		

15. a. $\frac{2}{3}$	b. 3/4
c. 5/9	d. $\frac{4}{10}$
e. 5	f. 3
g. 1	h. $\frac{2}{7}$
i. 3/5	$j.\frac{1}{3}+\frac{1}{3}$

$k. \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$	$1.\frac{1}{2} + \frac{1}{2}$
m. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	

16.

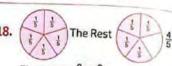
Eman's family



Ayman's family

Eman's family will get bigger pieces.

17. $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ He will need 3 times of the cup to complete the recipe.



First way = $\frac{2}{5} + \frac{2}{5}$ Second way = $\frac{1}{5} + \frac{3}{5}$

19	4 + 7 + 1 - 12
20,	10 10 10 10
	10 + 10 + 10 = 12
	Then Ahmed is true.

20. $\frac{1}{1}$ is a unit fraction because its numerator is 1 but it isn't a proper fraction because its numerator not less than its denominator.

Answers of multiple choice questions

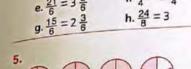
1.	В	2.	C	3.	1
4.	В	5.	A	6.	(
7.	C	8.	D	9.	(

10. B 11. A 12. A 13. B

Exercise 9

- a. A proper fraction
- b. An improper fraction c. An improper fraction
- d. A proper fraction
- e. A mixed number
- f. A mixed number
- 2. a. An improper fraction
- b. A mixed number
 - c. A proper fraction

	c. Apropa			
-	a. $2\frac{2}{6}$ b. $1\frac{1}{3}$	c. $3\frac{4}{6}$ d. $2\frac{1}{4}$		
3.		b. $\frac{11}{3} = 3\frac{2}{3}$		
4.	a. $\frac{9}{4} = 2\frac{1}{4}$	d. $\frac{6}{3} = 2$		
	$c.\frac{35}{8} = 4\frac{3}{8}$			
	21 - 3 3	$f. \frac{10}{4} = 2\frac{2}{4}$		

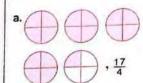


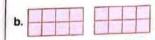


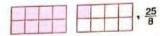


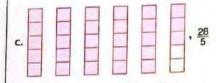
6.	$a.\frac{6}{5}, 1\frac{1}{5}$	$b.\frac{9}{6}, 1\frac{3}{6}$
	$c.\frac{5}{4}, 1\frac{1}{4}$	$d.\frac{7}{6} \to 1\frac{1}{6}$

7.





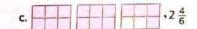














9. a. $\frac{7}{2}$

d.
$$\frac{21}{4}$$
 e. $\frac{21}{5}$ f. $\frac{20}{3}$

g.
$$\frac{38}{3}$$
 h. $\frac{37}{4}$ i. $\frac{42}{5}$ j. $\frac{101}{4}$ k. $\frac{45}{5}$ L. $\frac{34}{5}$

10. a.
$$4\frac{1}{2}$$
 b. $3\frac{4}{5}$ c. $8\frac{1}{3}$

d. 7 e.
$$5\frac{3}{8}$$
 f. $8\frac{1}{6}$

j. 9 h.
$$7\frac{5}{9}$$
 i. $5\frac{3}{4}$

j.
$$4\frac{3}{5}$$
 k. $11\frac{1}{3}$ L. 7

12. a.
$$\frac{1}{5}$$
 b. 8 c. $\frac{8}{5}$

13. What Maher did wrong , he replaced the whole number with the remainder.

The correct answer is $\frac{13}{5} = 2\frac{3}{5}$

14. The perimeter = $\frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8}$ $=\frac{12}{8}=1\frac{4}{8}$ metre.

Answers of multiple choice questions

30

- 5. A 6. B
- 7. C
- 8. A,D 9. A

Exercise 10

1. $a. \frac{2}{3} + \frac{2}{3} + 1 + 1 + 1 = \frac{4}{3} + 3$

b.
$$\frac{1}{4} + 1 + \frac{1}{4} + 1 = 2 + \frac{2}{4} = 2\frac{2}{4}$$

c. $\frac{2}{4} + 1 + 1 + 1 + \frac{1}{4} = 3 + \frac{3}{4} = 3\frac{3}{4}$
d. $1 + 1 + \frac{2}{5} + \frac{1}{5} = 2 + \frac{3}{5} = 2\frac{3}{5}$

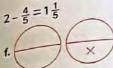
- 2. a. $2 + \frac{3}{7} = 2\frac{3}{7}$ b. $\frac{11}{12} + 5 = 5\frac{11}{10}$

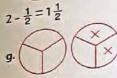
 - c. $\frac{7}{9} + 4 = 4\frac{7}{9}$ d. $4 + \frac{4}{5} = 4\frac{4}{5}$
 - e. $7 + \frac{1}{2} = 7\frac{1}{2}$ f. $\frac{5}{5} = 1$
 - g. $4 + \frac{6}{5} = 4 + 1\frac{1}{5} = 5\frac{1}{5}$
 - h. $6 + \frac{9}{8} = 6 + 1 \frac{1}{8} = 7 \frac{1}{8}$
- 3. a. ×
 - $1 \frac{3}{4} = \frac{1}{4}$

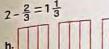
 - $1 \frac{2}{8} = \frac{6}{8}$

 - $1-\frac{2}{5}-\frac{1}{5}=\frac{2}{5}$

 - $2 \frac{1}{4} = 1\frac{3}{4}$













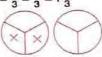
4.
$$a \cdot \frac{3}{8} + \frac{2}{8} + \frac{7}{8} = \frac{12}{8} = 1\frac{4}{8}$$

 $b \cdot 1 + 2 + \frac{1}{5} + \frac{3}{5} + \frac{4}{5} = 3 + \frac{8}{5}$
 $= 3 + 1\frac{3}{5}$
 $= 4\frac{3}{5}$

c.
$$1 - \frac{3}{6} - \frac{1}{6} = \frac{2}{6}$$

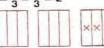


d. $2 - \frac{1}{3} - \frac{1}{3} = 1 \frac{1}{3}$

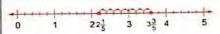


e. $1 + \frac{1}{7} + 2 + \frac{3}{7} = 3 + \frac{4}{7} = 3\frac{4}{7}$

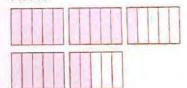




a. Number line: $2\frac{1}{5} + \frac{7}{5}$



Model:



Equation: $2\frac{1}{5} + 1\frac{2}{5} = 3\frac{3}{5}$

b. Number line: $1\frac{1}{4} + \frac{3}{4}$



Model:

Equation: $1\frac{1}{4} + \frac{3}{4} = 1\frac{4}{3} = 2$

c. Number line: $2\frac{1}{6} + \frac{11}{6}$

Model:



Equation: $2\frac{1}{6} + 1\frac{5}{6} = 4$

d. Number line: $4\frac{3}{4} - \frac{9}{4}$



Model:



Equation: $4\frac{3}{4} - 2\frac{1}{4} = 2\frac{2}{4}$

e. Number line: 5 - 9

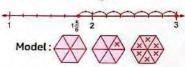






Equation: $5 - 2\frac{1}{4} = 2\frac{3}{4}$

f. Number line: $3 - \frac{7}{6}$



g. Number line: $2\frac{1}{5} - \frac{7}{5}$



Equation: $2\frac{1}{5} - 1\frac{2}{5} = \frac{4}{5}$

- - c. $5\frac{4}{4} = 6$ d. $4\frac{3}{3} = 5$

 - e. $6\frac{6}{6} = 7$ f. $5\frac{10}{7} = 6\frac{3}{7}$
- h. $2\frac{1}{3}$
- - 1.12
- 7. $a.4\frac{3}{5} 3\frac{2}{5} = 1\frac{1}{5}$
 - $b.6\frac{5}{6}-4\frac{5}{6}=2$
 - $c.7\frac{5}{9} 3\frac{1}{9} = 4\frac{4}{9}$
 - $d.2\frac{1}{4} + 3\frac{2}{4} = 5\frac{3}{4}$
 - e. $3\frac{1}{3}+1\frac{1}{3}=4\frac{2}{3}$
 - $f.4\frac{4}{5}-1\frac{1}{5}=3\frac{3}{5}$
 - $g.1\frac{5}{7} + 2\frac{3}{7} = 3\frac{8}{7} = 4\frac{1}{7}$
 - $h.3-1\frac{1}{7}=1\frac{6}{7}$
 - i. $4\frac{1}{4} 2\frac{3}{4} = 1\frac{2}{4}$
 - $j.5-3\frac{1}{4}=1\frac{3}{4}$
- 8. What Hanan bought in all $=2\frac{3}{4}+1\frac{1}{4}=3\frac{4}{4}=4$ m.
- 9. The total = $1\frac{3}{8} + 1\frac{5}{8} = 2\frac{8}{8}$
- **10.** The left = $3\frac{1}{4} 2\frac{3}{4} = \frac{2}{4}$ cookies.

- 11. The left = $1 \frac{1}{3} = \frac{3}{3} \frac{1}{3} = \frac{2}{3}$ kg.
- 12. What Fatema will need $=1-\frac{1}{5}-\frac{3}{5}=\frac{1}{5}$ bottle.
- 13. The time Heba read alone $=2-\frac{1}{2}-\frac{1}{2}=1$ hour
- 14. The total mass $=1\frac{1}{2}+\frac{1}{2}+2\frac{1}{2}=4\frac{1}{2}$ kg
- 15. The left = $2\frac{1}{4} 1\frac{2}{4}$ $=\frac{3}{4}$ pans of butter
- 16. What she will use $=\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=2$ teaspoons.
- 17. The perimeter $=1\frac{1}{4}+1\frac{1}{4}+1\frac{1}{4}+1\frac{1}{4}=5$ m

- 18. The perimeter $=3\frac{1}{5}+3\frac{1}{5}+1\frac{1}{5}+1\frac{1}{5}=8\frac{4}{5}$ cm
- 19. For example: $2\frac{2}{9} + 3\frac{5}{9}$ • Esslam has $2\frac{2}{9}$ kg of apple and his brother has $3\frac{5}{9}$ kg of apple. What is the total mass with Esslam and his brother? They has = $2\frac{2}{9} + 3\frac{5}{9} = 5\frac{7}{9}$ kg (Answers may vary)
- 20. The length of the fourth side $=20-3\frac{1}{8}-5\frac{3}{8}-4\frac{5}{8}=6\frac{7}{8}$ km.

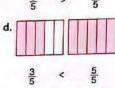
Answers of multiple choice questions

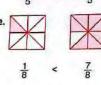
- 3. C 6. C
- 4. B 8. D
- 12. D 11. B 10. B

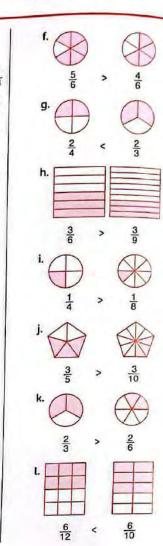
Comparing Fractions

Exercise 11

- 1. a. $\frac{2}{8} < \frac{3}{8}$ b. $\frac{5}{8} > \frac{3}{8}$ c. $\frac{3}{3} > \frac{3}{8}$ d. $\frac{1}{4} < \frac{2}{4}$ e. $\frac{3}{6} = \frac{3}{6}$ f. $\frac{3}{5} > \frac{5}{6}$
 - g. $\frac{1}{8} < \frac{1}{4}$ h. $\frac{2}{5} < \frac{2}{3}$ i. $\frac{4}{7} > \frac{4}{5}$ j. $\frac{4}{5} > \frac{4}{6}$ k. $\frac{1}{3} > \frac{1}{4}$ l. $\frac{5}{8} < \frac{1}{2}$
- 2. a. $\frac{1}{6} < \frac{4}{6}$ b. $\frac{1}{4} < \frac{3}{4}$ c. $\frac{3}{6} > \frac{1}{6}$







7. a. >	b. <	c. < f. <
3. d. <	e. <	
	h. <	i. >
g. <	k. >	l. <
j. >	n. <	0. >
m. < p. >	q. >	г. <
a. 2/5	b. 1/4	c. 3/8
d. 4/9	e. 5	f. $\frac{6}{6}$
9.4	h. 8	i. 3/9
J. #	k. 3/8	l. 5/6

- 5. a. $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$ b. $\frac{1}{6}$, $\frac{2}{6}$, $\frac{3}{6}$, $\frac{4}{6}$, $\frac{5}{6}$ c. $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{5}{8}$, $\frac{6}{8}$, $\frac{7}{8}$, $\frac{8}{8}$ d. $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$ e. $\frac{2}{12}$, $\frac{2}{8}$, $\frac{2}{7}$, $\frac{2}{6}$, $\frac{2}{5}$, $\frac{2}{4}$, $\frac{2}{3}$ f. $\frac{3}{12}$, $\frac{3}{8}$, $\frac{3}{6}$, $\frac{3}{5}$, $\frac{3}{3}$
- 6. a. $\frac{5}{7}$, $\frac{4}{7}$, $\frac{3}{7}$, $\frac{1}{7}$ b. $\frac{7}{11}$, $\frac{5}{11}$, $\frac{4}{11}$, $\frac{3}{11}$, $\frac{2}{11}$ c. $\frac{9}{10}$, $\frac{7}{10}$, $\frac{6}{10}$, $\frac{5}{10}$, $\frac{2}{10}$ d. $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{7}{7}$, $\frac{1}{10}$ e. $\frac{2}{3}$, $\frac{2}{5}$, $\frac{2}{7}$, $\frac{2}{9}$, $\frac{2}{10}$ f. $\frac{5}{5}$, $\frac{5}{6}$, $\frac{5}{7}$, $\frac{5}{9}$, $\frac{5}{11}$
- 7. a. v b. x c. v d. x e. x f. x g. v h. x i. v j. x

- 8. a. < b. <
 - c. Yes, because improper fractions are greater than 1 , so they always are greater than the proper fraction.

 If the numerator is 1 in the proper fractions , then the proper fraction of the smallest denominator always is greatest.
- 9. I perfere $\frac{6}{12}$ of candy bar because $\frac{6}{12} > \frac{5}{12}$
- 10. a. >,>,

 The order: $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{6}{8}$, $\frac{7}{8}$

 b. >,<,>

 The order: $\frac{4}{10}$, $\frac{4}{9}$, $\frac{4}{8}$, $\frac{4}{5}$, $\frac{4}{4}$, $\frac{4}{1}$

 c. <,<,>

 The order: $\frac{1}{9}$, $\frac{4}{9}$, $\frac{5}{9}$, $\frac{6}{9}$, $\frac{8}{9}$, $\frac{9}{9}$

 d. <,>,>

 The order: $\frac{5}{15}$, $\frac{5}{12}$, $\frac{5}{10}$, $\frac{5}{9}$, $\frac{5}{8}$, $\frac{5}{5}$
- 11. Hady scored more goals because $\frac{2}{3} > \frac{2}{4}$



12. Lamia ate more than Ganna. because $\frac{3}{4} > \frac{3}{6}$



13. a. . What Sherouk ate

$$=\frac{2}{15}+\frac{7}{15}=\frac{9}{15}$$

· What Yehia ate

$$=\frac{7}{15}+\frac{8}{15}=\frac{15}{15}=1$$

· What Ziad ate

$$=\frac{4}{15}+\frac{10}{15}=\frac{14}{15}$$

- b. . The remainder with Sherouk $=1-\frac{9}{15}=\frac{15}{15}-\frac{9}{15}=\frac{6}{15}$
 - The remainder with Yehia =1-1=0
 - · The remainder with Ziad $=1-\frac{14}{15}=\frac{15}{15}-\frac{14}{15}=\frac{1}{15}$
- c. Sherouk has the greatest remainder amount of chocolate.
- d. Yehia has the least remainder amount of chocolate.

Answers of multiple choice questions

- 10. C

Exercise 12

- 1. a. Equivalent b. Equivalent
 - c. Not equivalent
 - d. Not equivalent
 - e. Not equivalent f. Equivalent

2. a. 2 d. 8

3. a. 2

- b. 4 e. 14
- C. 2
- h. 12
- f. 18
- i. 4
- b. 3

g. 15

- j. $\frac{4}{9} = \frac{8}{18}$ k. $\frac{2}{6} = \frac{4}{12}$ l. $\frac{6}{16} = \frac{3}{6}$
- m. $\frac{5}{7} = \frac{10}{14}$ n. $\frac{4}{6} = \frac{8}{12}$ o. $\frac{3}{4} = \frac{6}{6}$
- 4. a. $\frac{1}{2}$, $\frac{2}{4}$ b. $\frac{1}{3}$, $\frac{2}{6}$ c. $\frac{4}{5}$, $\frac{8}{10}$
 - $d, \frac{2}{6}, \frac{4}{12}$ e. $\frac{7}{9}, \frac{14}{18}$
- 5. Answer by yourself.
- 6. a.

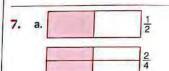






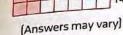








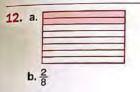




- 8. a. $\frac{7}{4}$, $1\frac{3}{4}$
- b. $\frac{14}{8}$, $1\frac{6}{8}$
- $c.\frac{3}{2},1\frac{1}{2}$ $d.\frac{6}{4},1\frac{2}{4}$
- e. $\frac{12}{9}$, $1\frac{3}{9}$ f. $\frac{11}{7}$, $1\frac{4}{7}$
- 9. [1] a. Equivalent
 - b. Not equivalent
 - c. Equivalent
 - d. Not equivalent
 - e. Equivalent
 - f. Not equivalent

$[2]\frac{2}{8},\frac{3}{12}$	$[3]\frac{4}{6},\frac{6}{9}$
0 12	

- d. 9 10. a. 4 b. 8 c. 4
- d. X C. V 11. a. V b. X



13.

a.

Mona

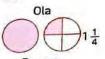


Malek

b. They ate the same amount

, because $1\frac{1}{2} = \frac{6}{4}$

14.



Basma



Ola and Basma ate the same amount because $1\frac{1}{4} = \frac{5}{4}$

15. Kareem won because his rectangular Pizza is bigger than Magdy's Pizza. "The two pizzas are not the same size"

16. a. 2

Answers of multiple choice questions

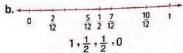
6. B

Exercise 13

First Problems on benchmark fractions

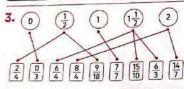
1.





2.

Fraction	1	lumber lin	e	0	1/2	1
2/4	0	2	1		-	
1/6	0 1/6	+	ï	V		
5 8	0		7 1			V
4 10	0	4 10	· · · · · · · · · · · · · · · · · · ·		~	



4. a. (1) At the beginning: $0 = \frac{0}{8}$ At the middle: $\frac{1}{2} = \frac{4}{8}$ At the end = $1 = \frac{8}{9}$

- [2] At the beginning: $0 = \frac{0}{2}$ At the middle: $\frac{1}{2} = \frac{6}{12}$
 - At the end = $1 = \frac{12}{12}$
- (3) At the beginning: $0 = \frac{0}{2}$
 - At the middle: $\frac{1}{2} = \frac{5}{10}$
 - At the end = $1 = \frac{10}{10}$
- b. Sherif must place the benches at:
- $0 \text{ km} \cdot \frac{2}{4} \text{ km} \cdot \frac{4}{4} \text{ km}$, 6 km , 2 km

Second Problems on comparing fractions using benchmarks

- - c. >,>,> d. >,>,>
- 2. a. > c. = d. > e. = h. >
- b. X C. X a. V
 - d. X e. X f. V
- h. X k. X
- 4. a. $\frac{2}{10}$, $\frac{3}{6}$, $\frac{6}{8}$ b. $\frac{2}{6}$, $\frac{5}{10}$, $\frac{7}{12}$ c, $\frac{9}{9}$, $\frac{5}{6}$, $\frac{1}{4}$ d. $\frac{5}{5}$, $\frac{10}{11}$, $\frac{10}{20}$

Story problems

First cake $\frac{5}{10} = \frac{1}{2}$

Second cake $\frac{5}{6} > \frac{1}{2}$

So, the second cake had more eaten.

Bucket 2 $\frac{5}{10} = \frac{1}{2}$

50, the bucket 2 has less water.

3. Rashad ate more because

$$\frac{4}{8} = \frac{1}{2}, \frac{4}{6} > \frac{1}{2}$$

Mariam ate $\frac{4}{12}$ and $\frac{4}{12} < \frac{1}{2}$

Jana ate $\frac{3}{6}$ and $\frac{3}{6} = \frac{1}{2}$

then, Jana ate more than Mariam.

Hatem made $\frac{14}{18}$ and $\frac{14}{18} > \frac{1}{2}$

Amir made $\frac{8}{16}$ and $\frac{8}{16} = \frac{1}{2}$

50, Hatem made a larger fraction of the shots taken.

Mazen's model 6.



Mazen ate $\frac{1}{2}$ of the bar

Ezz's model



Ezz ate $\frac{1}{2}$ of the bar

But the two model bars are not the same size.

So, $\frac{1}{2}$ of Mazen's bar > $\frac{1}{2}$ of Ezz's bar

Amirate $\frac{3}{9}$ and $\frac{3}{9} < \frac{1}{2}$

Sarah ate $\frac{5}{8}$ and $\frac{5}{8} > \frac{1}{2}$

So, Sarah ate more than half.

8. 4

Answers of multiple choice questions

- 4. B 5. D 6. C
- 8. C 9. A
- 10. B

Multiplication and Fractions

Exercise 14

- 1. a. $\frac{4}{12}$ b. $\frac{3}{12}$ c. $\frac{10}{25}$ d. $\frac{6}{8}$ e. $\frac{30}{42}$ f. $\frac{16}{24}$ g. $\frac{1}{2}$ h. $\frac{1}{2}$ i. $\frac{2}{8}$ j. $(\div 5)$, $\frac{2}{3}$ k. $(\div 10)$, $\frac{2}{5}$ l. $\frac{3}{4}$
- 2. a. $\frac{8}{12}$ b. $\frac{15}{20}$ c. $\frac{18}{21}$ d. $\frac{18}{22}$ e. $\frac{56}{72}$ f. $\frac{80}{130}$
- 3. a. $\frac{2}{12}$ b. $\frac{6}{9}$ c. $\frac{1}{3}$ d. $\frac{1}{5}$ e. $\frac{2}{3}$ f. $\frac{3}{3}$ g. $\frac{4}{5}$ h. $\frac{14}{16}$

(Answers may vary)

- 4. **a.** $\frac{4}{10} = \frac{6}{15} = \frac{8}{20}$ **b.** $\frac{1}{3} = \frac{3}{9} = \frac{5}{15}$ **c.** $\frac{8}{12} = \frac{12}{18} = \frac{20}{30}$ **d.** $\frac{8}{20} = \frac{12}{30} = \frac{16}{40}$ **e.** $\frac{1}{3} = \frac{2}{6} = \frac{4}{12}$ **f.** $\frac{2}{10} = \frac{5}{15} = \frac{5}{25}$ [Answers may vary]
- 5. a. $\frac{4}{6}$, $\frac{6}{9}$, $\frac{8}{12}$, $\frac{10}{15}$, $\frac{12}{18}$ b. $\frac{1}{2}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$, $\frac{6}{12}$ c. $\frac{6}{10}$, $\frac{9}{15}$, $\frac{12}{20}$, $\frac{15}{25}$, $\frac{18}{30}$ d. $\frac{1}{3}$, $\frac{2}{6}$, $\frac{4}{12}$, $\frac{5}{15}$, $\frac{6}{18}$
- 6. a. True b. True c. False d. False e. False f. True 9. True h. False i. False j. True k. True l. False

- 7. a. 3 b. 6 c. 2 d. 9 e. 4 f. 15 g. 45 h. 45 i. 1 j. 6 k. 21 l. 3 m. 39 n. 6 o. 4 p. 50
- 8. a. 3 b. 3 c. 5 d. 1 e. 15 f. 6
- 9. a. x b. v c. x d. x e. v f. v g. v h. x i. v j. x

10. 14 16 15 5 5 7 8 8 8 8

- **11.** a. 2 , $1 = \frac{2}{2}$ b. 4 , $1 = \frac{4}{4}$ c. 10 , $1 = \frac{10}{10}$
 - d. $\frac{2}{2} = \frac{4}{4} = \frac{10}{10}$, when the numerator and denominator are the same the fraction is equivalent to 1.
 - e. 25
- 12. No. $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} = \frac{10}{15} = \frac{12}{18} = \frac{14}{21}$ $= \frac{16}{24} = \frac{18}{27}$ So, $\frac{2}{3} \neq \frac{16}{25}$

13. No, because we can multiply the same number by the numerator and denominator to find equivalent fraction.

Example: $\frac{2}{3} \neq \frac{2+4}{3+4} \neq \frac{6}{7}$

but: $\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

You can check using fraction wall

- 14. $\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$ but: $\frac{9}{12} = \frac{9 \div 3}{12 \div 3} = \frac{3}{4}$ Using fraction wall:
 - $50, \frac{2}{3} \neq \frac{3}{4}$
- 15. $\frac{\times 4}{3} = \frac{X}{16}$, then $X = 3 \times 4 = 12$

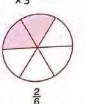
So, 12 birds flew away.

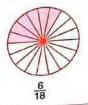
16.

 $\frac{2}{3} = \frac{?}{9}$, then the number of cookies $= 2 \times 3 = 6$ cookies.

17.

 $\frac{2}{6} = \frac{?}{18}$ 50, the number of pieces $2 \times 3 = 6$ pieces.





18. $\frac{10}{15} = \frac{?}{6}$ $\frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \frac{2}{3} \text{ , then } \frac{2}{3} = \frac{?}{6}$

So, what Sylvia's team won = 2×2 = 4 games.

- **19.** What Omar gave his friend Heba = $\frac{3}{12} = \frac{3 \div 3}{12 \div 3} = \frac{1}{4}$
- **20.** 1. $\frac{6}{12}$ or $\frac{1}{2}$ [6 pieces]
 - 2. $\frac{4}{12}$ or $\frac{1}{3}$ [4 pieces]
 - 3. $\frac{2}{12}$ or $\frac{1}{6}$ 4. $\frac{4}{24}$ or $\frac{2}{12}$
- 21. $\frac{1}{3}$

Answers of multiple choice questions

- 1. B 2. A 3. B 4. D
- 5. C 6. A 7. D 8. B
- 9. A 10. D 11. C 12. A
- 13. C 14. B 15. B 16. C 17. A,D 18. D

Exercise 15

- 1. a.
 - Addition sentence: $\frac{1}{5} + \frac{1}{5}$ Multiplication sentence: $2 \times \frac{1}{5}$
 - b. _____
 - Addition sentence: $\frac{1}{7} + \frac{1}{7} + \frac{1}{7}$ Multiplication sentence: $3 \times \frac{1}{7}$
 - c.

Addition sentence:

- $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
- Multiplication sentence: $5 \times \frac{1}{8}$



Addition sentence:

$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

Multiplication sentence: $4 \times \frac{1}{6}$

2. a. Fraction: $\frac{5}{6}$ Addition sentence: $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$ Multiplication sentence: $5 \times \frac{1}{6}$

- b. Fraction: $\frac{3}{5}$ Addition sentence: $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ Multiplication sentence: $3 \times \frac{1}{5}$
- c. Fraction: $\frac{2}{4}$ Addition sentence: $\frac{1}{4} + \frac{1}{4}$
- Multiplication sentence:2×1
- d. Fraction: $\frac{6}{8}$

Addition sentence :

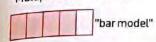
$$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

Multiplication sentence: 6 x 1

- 3. a. $\frac{3}{5}$
 - b. ğ
 - d. 5/3
- 4. a. $\frac{2}{5}$ b. $\frac{5}{7}$ c. $\frac{4}{9}$ d. $\frac{8}{9}$ e. $\frac{3}{4}$ f. $\frac{2}{6}$ g. $\frac{3}{3} = 1$ h. $\frac{6}{7}$ i. $\frac{6}{7}$
- 5. a. v b. x c. x · d. v e. v f. x q. v h. v
- 6. a. →3 b.
 - c. → 5 d. →
 - e. --- 4

7. She drinks $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$ "Sum of unit fractions"

She drinks $4 \times \frac{1}{5} = \frac{4}{5}$ "Multiplication sentence"



- 8. It will take $\frac{2}{6} \times 2 = \frac{4}{6}$ of a bag of flour.
- 9. Number of pizzas = $\frac{2}{9} \times 7$ = $\frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9}$ = $\frac{14}{9} = 1\frac{5}{9}$ pizzas.
- 10. When we multiply a proper fraction and a whole number [except 0 and 1] the product is less than the whole number factor, but greater than the fraction factor. This is different from multiplying whole numbers because the product is always greater than either factor.

Answers of multiple choice questions

- 1. D 2. C
 - 3. B
- . C 6. B
- 7. B 8. C
- 9. D 10. B

- Exercise 16
- 1. The length of remaining part $= 12 \frac{3}{4} 3 \frac{1}{4} = 9 \frac{2}{4} \text{ m}.$
- 2. What Heba needs = $\frac{5}{8} \frac{2}{8} = \frac{3}{8}$ of a jug of milk.
- 3. What Kareem ran in all $= \frac{4}{2} + \frac{1}{2} + \frac{6}{2} = 2 + \frac{1}{2} + 3 = 5 \frac{1}{2} \text{ km}$
- 4. The left = $1 \frac{1}{8} \frac{1}{8} \frac{1}{8} \frac{1}{8} = \frac{1}{8}$ = $\frac{4}{8}$ of the cake.
- 5. What he has jogged = $7\frac{1}{5} + 5\frac{1}{5} + 8\frac{2}{5} = 20\frac{4}{5}$ km
- 6. What Adam drank = $1\frac{3}{4}$ = $1\frac{6}{8}$ litres. What Omar drank = $1\frac{7}{8}$ litres. So, Omar drank more.
- 7. What Tahani ate $=\frac{2}{8} + \frac{5}{8} = \frac{7}{8}$ of the bunch of cakes.
- 8. The difference = $1\frac{2}{9} \frac{8}{9}$ = $\frac{11}{9} - \frac{8}{9} = \frac{3}{9}$ km
- 9. The remainder = $1 \frac{5}{16}$ = $\frac{16}{16} - \frac{5}{16}$ = $\frac{11}{16}$ of the wall.
- **10.** The remainder = $1 \frac{1}{9} \frac{5}{9} = \frac{3}{9}$ of the homework.

- 11. The difference = $\frac{5}{8} \frac{2}{8} = \frac{3}{8}$ can. 3.
- **12.** The difference = $\frac{9}{12} \frac{3}{12} = \frac{6}{12}$
- **13.** The left = $\frac{3}{4} \frac{1}{4} \frac{1}{4} = \frac{1}{4}$ cup.
- 14. . 2 = + 1 5

Lara runs 2 $\frac{2}{7}$ km. on Sunday and $1\frac{5}{7}$ km, on Monday, what is the total distance she run in all? What she runs in all = $2\frac{2}{7} + 1\frac{5}{7}$ $=3\frac{7}{7}=4$ km.

 $-3\frac{7}{10}-1\frac{8}{10}$

Mai has 3 7 kg of meat , Nora has $1\frac{8}{10}$ kg of meat, what is the difference between them? The difference = $3\frac{7}{10} - 1\frac{8}{10}$ $=2\frac{17}{10}-1\frac{8}{10}=1\frac{9}{10}$ kg

Answers of multiple choice questions

- 1. B 2. A 3. C 4. C
- 5. A 6. C 7. C

[Answers may vary]

Unit 9 Assessments

Model

- 1. a. B
- b. C
- c. D

- a. $6\frac{5}{6}$
- b. 5 4
- c. $1\frac{7}{9}$

- a. V
- b. v
- C. X

what Sara needs = $\frac{7}{10} - \frac{2}{10} = \frac{5}{10}$ of jug of milk.

Model 2

- 1. a. C
- b. B
- C. C

- 2.
- a. $3\frac{2}{9}$
- b. 25
- c. 5 4

- c. ——1

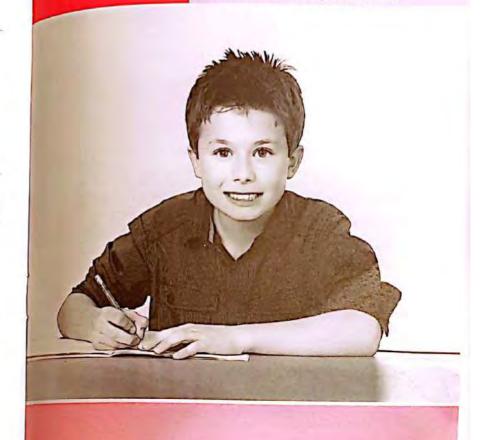
- a. X
- C. X

- The order is $\frac{3}{8}$, $\frac{5}{10}$, $\frac{7}{9}$

Answers of unit

Decimals

- » Concept 1: Defining Decimals
- » Concept 2: Decimals and Fractions
- » Concept 3: Working with Decimals



Defining Decimals

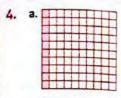
Exercise 17

- c. 0.6 b. 0.8 f. 0.1 e. 0.4 d. 0.9 i. 2.8 h. 0.5 g. 0.7 j. 1.2





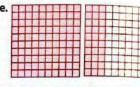
3. a. 0.46 b. 0.13 c. 0.42 d. 0.06 e. 0.98 f. 0.85 g. 1.33 h. 1.03 46

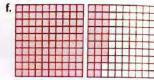




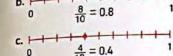


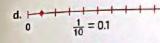


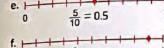


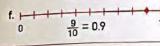


2.	a. 0.2	b. 1.0	c. 1.1	d. 1.6
	e. 3.5	f. 0.23	g. 0.5	
6.	a.	6/10 =	0.6	+
	2 1 4	1 1 1	1 1	•









7.	a. 0.7	b. 0.5	c. 0.3
	d. 0.2	e. 0.73	f. 0.15
	g. 0.07	h. 0.03	

8.	a. 2/10	b. 6/10	c. 8/10
	d. 1/10	e. 23 100	f. 69
	g. 8	h. 2	

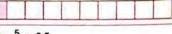
	9. 100	n. 100	
9.	a. 0.2	b. 0.5	c. 0.7
	d. 0.8	e. 0.1	

10.	a. 0.99	b. 0.69	c. 0.47
	d. 0.09	e. 0.22	

12. a.
$$\frac{4}{10} = 0.4$$
 b. $\frac{7}{10} = 0.7$ c. $\frac{9}{10} = 0.9$ d. $\frac{5}{10} = 0.5$

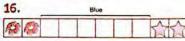
e.
$$\frac{4}{10} = 0.4$$
 f. $\frac{64}{100} = 0.64$
g. $\frac{76}{100} = 0.76$ h. $\frac{3}{100} = 0.03$

13.
$$0.1 = \frac{1}{10}$$
 amd $\frac{1}{10}$ means 1 divided into 10 equal parts

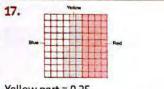




15.
$$\frac{9}{10} = 0.9$$

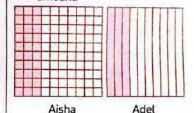


0.2 of the strip has stars.



Yellow part = 0.25

18. Adel is correct , 0.30 and 3 tenths (0.3) are representing the same amount.



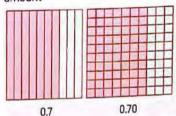
19. Length of the paper clip = 5 cm. Fraction: $\frac{5}{100}$ m

Decimal: 0.05 m

20.

0.70 is equal to 0.7

Because they represent the same amount



21. The error is $0.20 \neq \frac{2}{100}$ because $\frac{2}{100} = 0.02$ (not 0.20)

Answers of multiple choices questions

- I. B 2. A 3.
- 4. B 5. D 6. B
- 7. C 8. C 9.

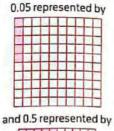
Exercise 18

- 1. a. 30
- b. 9
- c. 500
- d. 8
- e. For example:

5 in the hundredths place is 0.05 and 5 in the tenths place is 0.5

$$0.05 = \frac{5}{100}$$
 , $0.5 = \frac{5}{10}$

and we know that $\frac{5}{100} < \frac{5}{10}$ Also:





- We notic that 0.05 < 0.5
- 2. a. 7.98 b. 0.29 c. 5.34 d. 0.67 e. 1.04
- 3. a. 0.3 or 3/10
- **b.** $0.05 \text{ or } \frac{5}{100}$
- c. 9
- d. Tenths
- e. Ones
- f. Hundredths
- 4. a. v b. v c. x d. x
- 5. a. 1.2 b. 2.36 c. 1.1
 - d. 2.54 e. 0.15 f. 3.22
 - g. 1.1 h. 1.25
- 6. a. 5.51 b. 2.07 c. 7.09
 - d. 5.82 e. 9.43 f. 4.07
 - g. 0.47

- 7. a. Four and fifty-three hundredths.
 - b. Forty eight hundredths.
 - c. Seven and eight hundredths.
 - d. Three and seventy- one hundredths.
 - e. Two and thirteen hundredths.
 - f. Four and two hundredths.
 - g. Seven and thirty seven hundredths.
 - h. Two and nine hundredths.
- 8. a. 3+0.7+0.08 b. 2+0.04
 - c. 2+0.50
- d. 1+0.1+0.08
- e. 5+0.6+0.08 f. 6+0.1+0.04
- 9. a. 4 Ones -5 Tenths
 - b. 8 Ones -1 Hundredth
 - c. 7 Ones , 3 Tenths , 4 Hundredths.
 - d. 1Tenth , 4 Hundredths
 - e. 6 Tenths , 9 Hundredths
 - f. 7 Ones , 6 Tenths , 1 Hundredth
- 10. a. Word form:

Five and three hundredths

Unit form:

5 Ones , 3 Hundredths

Expanded form: 5 + 0.03

b. Standard form: 3.78

Unit from: 3 Ones , 7 Tenths

,8 Hundredths

Expanded form: 3 + 0.7 + 0.08

- c. Standard form: 7.63
 - Word from: Seven and sixty-three hundredths

Expanded form: 7 + 0.6 + 0.03

d. Standard form: 5.17

Word form:

Five and seventeen hundredths

Unit form:

5 Ones 1 Tenth 7 Hundredths

e. Word form:

Fifteen and nine tenths

Unit form:

1Ten . 5 Ones . 9 Tenths

Expanded form: 10 + 5 + 0.9

f. Standard form: 16.06

Unit from:

1Ten , 6 Ones , 6 Hundredths

Expanded form: 10 + 6 + 0.06

g. Standard from: 5.9

Word form: Five and nine tenths

Expanded form: 5 + 0.9

h. Standard form: 20.08

Word form:

Twenty and eight hundredths

Unit form:

2 Tens , 8 Hundredths

11. a. Standard form: 2.19

Word form:

Two and nineteen hundredths

Unit form:

2 Ones ,1 Tenth ,9 Hundredths

Expanded form: 2 + 0.1 + 0.09

b. Standrd form: 0.33

Word form:

Thirty-three hundredths

Unit form:

3 Tenths + 3 Hundredths

Expanded form: 0.3 + 0.03

c. Standrd form: 4.58

Word form:

Four and fifty-eight hundredths

Unit form: 4 Ones, 5 Tenths

, 8 Hundredths

Expanded form: 4 + 0.5 + 0.08

d. Standard form: 4.10 = 4.1

Word form:

Four and one tenth

Unit form: 4 Ones, 1 Tenth

Expanded form: 4 + 0.1

e. Standrd form: 1.03

Word form:

One and three hundredths

Unit form:

10ne,3 Hundredths

Expanded form: 1+0.03

12. a. 3 Tens , 2 Tenths , 30.2

30 + 0.20

b. 4+0.05

4 Ones . 5 Hundredths

c. 7.15

7 Ones 1 Tenth 5 Hundredths

d. 3.23 , 3 Ones , 23 Hundredths

13.	a. 0.7	b. 0.09	c. 22.35
•		Control of the control of	

15. 2.68

Answers of multiple choice questions

2	D	

Concept

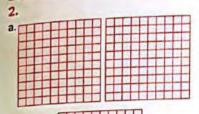
Decimals and Fractions

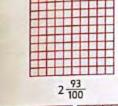
Exercise 19

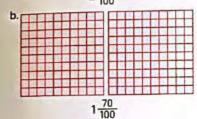


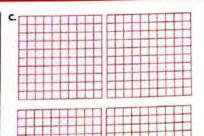
e.
$$\frac{36}{100}$$
, 0.38 F. $\frac{100}{100}$, 0.0

k.
$$3\frac{3}{10}$$
, 3.3 L. $2\frac{40}{100}$, 2.40

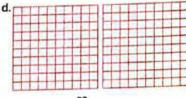


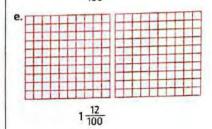


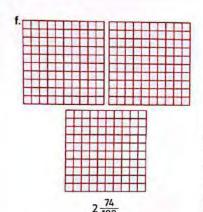


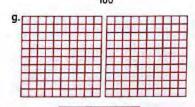


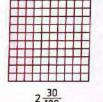


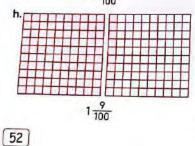












3. a.
$$7\frac{6}{10}$$
, $\frac{76}{10}$ b. $3\frac{4}{10}$ or $\frac{34}{10}$

b.
$$3\frac{4}{10}$$
 or $\frac{34}{10}$

c.
$$10\frac{5}{100}$$
 or $\frac{105}{100}$ d. $2\frac{2}{100}$ or $\frac{202}{100}$

d.
$$2\frac{2}{100}$$
 or $\frac{202}{100}$

e.
$$2\frac{20}{100}$$
, $\frac{220}{100}$ f. $5\frac{97}{100}$ or $\frac{597}{100}$

g.
$$4\frac{79}{100}$$
 or $\frac{479}{100}$

g.
$$4\frac{79}{100}$$
 or $\frac{479}{100}$ h. $6\frac{28}{100}$ or $\frac{628}{100}$

i.
$$3\frac{27}{100}$$
 or $\frac{327}{100}$

4. a.
$$30,\frac{30}{10}$$
 b. $10,\frac{10}{10}$

c.
$$40, \frac{40}{10}$$
 d. $13, \frac{13}{10}$

e.
$$15, \frac{15}{10}$$
 f. $23, \frac{23}{10}$

g. 51,
$$\frac{51}{10}$$
 h. 174, $\frac{174}{10}$

i.
$$108, \frac{108}{10}$$
 j. $246, \frac{246}{10}$

5. a.
$$100, \frac{100}{100}$$

b. 300,
$$\frac{300}{100}$$

c.
$$500, \frac{500}{100}$$
 d. $1900, \frac{1900}{100}$

f. 230,
$$\frac{230}{100}$$

[as a fraction]

[as a decimal]

i.
$$1320, \frac{1320}{100}$$
 j. $40, \frac{40}{100}$

6. 18 tenths =
$$\frac{18}{10}$$
 or $1\frac{8}{10}$

18 tenths = 1.8

14. Mr. Marawan has 3 85

Decimal: 0.6

Fraction: 6

11. • 50.1 cm.

12. • 1.4 liters

7. 825 hundredths = 8.25

d. $\frac{291}{100}$ or $2\frac{91}{100}$

f. 895

 $825 \text{ hundredths} = \frac{825}{100} \text{ or } 8\frac{25}{100}$

b. 520

g. 3.9

g. V

9. a. x b. v c. v d. x

(as a decimal)

(as a fraction)

c. 19.8

e. 374 h. 214

• [501 tenths] cm

• [14 tenths] liters

= 3.85 boxes of crayons

13. • 38 students • 38 hundredths

Answers of multiple choice questions

Exercise 20

1. a.
$$\frac{80}{100}$$
, 0.80 b. $\frac{3}{10}$, 0.3

b.
$$\frac{3}{10}$$
, 0.3

c.
$$\frac{50}{100}$$
, 0.50 d. $\frac{1}{10}$, 0.1

d.
$$\frac{1}{10}$$
, 0.1

e.
$$\frac{9}{10} = \frac{90}{100}$$
, $0.9 = 0.90$

f.
$$\frac{2}{10} = \frac{20}{100}$$
, $0.2 = 0.20$

$$g. \frac{7}{10} = \frac{70}{100}, 0.7 = 0.70$$

$$h. \frac{6}{10} = \frac{60}{100}, 0.6 = 0.60$$

2. a. equivalent

f. not equivalent

5. a.
$$\frac{70}{100}$$
 b. $\frac{8}{10}$ c. $\frac{90}{100}$

d.
$$\frac{40}{100}$$
 e. $\frac{1}{10}$ f. $\frac{2}{10}$

f. 0.1

Answers

- 6. a. $\frac{10}{100}$ 0.10 b. $\frac{7}{10}$ 0.7 a. $\frac{10}{100}$, 0.10 b. $\frac{7}{10}$, 0.7 c. 7 tenths $\longrightarrow \frac{7}{10} \longrightarrow 0.7$ c. $\frac{60}{100}$, 0.60 d. $\frac{40}{100}$, 0.40 d. 4 tenths $\longrightarrow \frac{4}{10} \longrightarrow 0.4$
 - e. $\frac{3}{10}$, 0.3 f. $\frac{90}{100}$, 0.90 e. 42 hundredths $\longrightarrow \frac{42}{100}$
 - g. $\frac{100}{100}$, 1.00 h. $1\frac{40}{100}$, 1.40
 - i. $2\frac{10}{100}$, 2.10 j. $3\frac{3}{10}$, 3.3
 - k. $4\frac{20}{100}$, 4.20 L. $5\frac{7}{10}$, 5.7
- 7. **a.** $\frac{5}{10} = \frac{50}{100}$ **b.** $\frac{20}{100} = \frac{2}{10}$
 - c. $\frac{4}{10} = \frac{40}{100}$ d. $\frac{200}{100} = \frac{20}{10}$
 - e. $\frac{70}{100} = \frac{7}{10}$ f. $\frac{80}{10} = \frac{800}{100}$
 - g. $\frac{3}{10} = \frac{30}{100}$ h. $\frac{60}{100} = \frac{6}{10}$
 - i. $\frac{7}{10} = \frac{70}{100}$ j. $\frac{900}{100} = \frac{90}{10}$
 - k. $\frac{8}{10} = \frac{80}{100}$ L $\frac{10}{100} = \frac{1}{10}$
- 8. a. v b. x c. x d. x e. v f. v g. v
- 9. 0.50 , 50
- 10. He was wrong. Because . 5.20 = 5.2 [equivalent decimals]
- 11. a. one tenth $\longrightarrow \frac{1}{10} \longrightarrow 0.1$ b. 3 hundredths $\rightarrow \frac{3}{100}$

- f. one and 6 tenths $\longrightarrow 1\frac{6}{10}$







$$0.8 = \frac{80}{100} = \frac{8}{10}$$

Answers of multiple choice questions

- 1. A 2. D 3. C
- 4. D 5. B 6. B
- 7. C 8. D 9. A
- 11. D 12. C 10. C

Concept 3

Working with Decimals

Exercise 21

2	a. 0.2 3 0.16	b. 0.6 © 0.60
	c. 0.90 ⊙ 0.7	d. 0.28 © 0.30
	e. 0.3 © 0.03	f. 0.77 3 0.67

2.	Ones	Decimal point	Tenths	Hundredths
	0		3	4
a. 0.34 < 0.4	0		4	0

	Ones	Decimal point	Tenths	Hundredths
b. 0.45 > 0.04	0		4	5
b. 0.45 * 0.5	0		0	4

	Ones	Decimal point	Tenths	Hundredths
c. 0.23 < 0.3	0		2	3
C. U.23	0		3	0

	Ones	Decimal point	Tenths	Hundredths
d. 0.54 > 0.45	0		5	4
Д. О. Э4	0		4	5

	Ones	Decimal point	Tenths	Hundredths
e. 0.62 > 0.26	0		6	2
6,0,00	0		2	6

	Ones	Decimal point	Tenths	Hundredth
f. 0.80 > 0.09	0		8	0
	0	7 9 9	0	9

	Ones	Decimal point	Tenths	Hundredth
g. 0.73 > 0.69	0	11.	7	3
	0		6	9

	Ones	Decimal point	Tenths	Hundredth
h. 0.10 = 0.1	0		1	0
	0	*	1	0

			Decimal point	Tenths	Hundredths
i. 0	0.49 > 0.04	0		4	9
		0		0	4

	Ones	Decimal point	Tenths	Hundredths
j. 0.27 < 0.7	0		2	7
	0	100	7	0

3.	a. >	b. >	c. >	
	d. =	e. >	f. >	
	g. <	h. <	1. <	
	j. >	k. <	L. >	

0. >

p. <	q. >	r. >

- Hatem is wrong because Ezz's model represents 0.4 and Hatem's model represents 0.37 and 0.4 > 0.37
- 9. The faster runner is Petra The time for Petra is 6.45 seconds
- 10. Youssefran the greater distance because 1.68 > 1.65

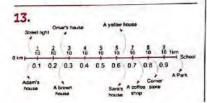
11.

Fruit	Ones	Decimal Point	Tenths	Hundredths
Figs	1		3	0
Mangoes	2		0	1
Plums	1		2	1
Pomegranates	2		2	5

- a. Plums
- b. Pomegranates
- c. Figs , Mangoes and Pomegrantes
- d. Plums , Figs
- e. Pomegranates > Mangoes

[Answers may vary]

- [Answers may vary] f. Plums < Figs
- 12. The first box is the greater because 0.5 > 0.25

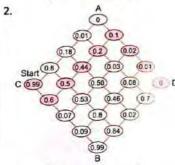


- a. Sara's house b. Coffee shop c. Omar d. Sara e. 2 km
- 14. The second bottle has more olive oil because 0.73 > 0.5
- 15. Amal eat more because 0.6 > 0.4
- 16. Badr walking greater distance to go to a supermarket because 0.44 > 0.40





[Answers may vary]



[Answers may vary]

Answers of multiple choice questions

	۸	2.	В	3.	В
1.	A	2.	C	6.	D
4.	Α		-	0	Δ

11. D 12. C 10. B

Exercise 22

1.	a. 60	ь. 30	c. 100
1.	d. 10	e. 10	f. 10
	a. 10	h. 5	

- a. 3"by Dividing by 10 the result
 - b. 100 "by Multiplying by 10 the result is 100"
 - c. 20 "by Multiplying by 10 the result is 20"
 - d. 9"by Dividing by 10 the result is 9"
 - e. 5"by Dividing by 10 the result is 5"
 - f. 10 "by Dividing by 10 the result is 10"
 - g. 10 "by Dividing by 10 the result is 10"
 - h. 400 "by multiplying by 10 the result is 400"
 - i. 10 "by Dividing by 10 the result is 10"
 - j. 80 "by Multiplying by 10 the result is 80"

-	45	
3.	a. 100	

c.
$$\frac{50}{100}$$
 or $\frac{5}{10}$
e. $\frac{12}{10} = 1\frac{2}{10}$

d.
$$\frac{75}{100}$$
f. $\frac{93}{100}$

g.
$$2\frac{72}{100}$$
 h. $1\frac{80}{100}$ or $1\frac{8}{10}$

i.
$$5\frac{107}{100} = 6\frac{7}{100}$$

- 4. a. 60 .83
- b. 6,13
- c. 30 + 38
- d. 90 , 113
- e. 50 , 82
- f. 60 , 142
- 5. a. 95
- b. $\frac{91}{100}$
- c. $\frac{63}{100}$ d. $\frac{126}{100} = 1\frac{26}{100}$
- e. $\frac{100}{100} = 1$ f. $\frac{90}{100}$ or $\frac{9}{10}$
- g. $\frac{100}{100} = 1$ h. $\frac{100}{100} = 1$
- i. $\frac{101}{100} = 1\frac{1}{100}$ j. $\frac{104}{100} = 1\frac{4}{100}$
- k. 7 92
- $1.2\frac{35}{100}$
- o. 16 47
- m. $\frac{33}{100}$ n. $6\frac{35}{100}$ p. 11 42
- C. X
- 7. What she had = $\frac{8}{10} + \frac{25}{100} = \frac{105}{100}$ $=1\frac{5}{100}$ meter.

8. What he has = $\frac{5}{10} + \frac{65}{100} = \frac{115}{100}$ $=1\frac{15}{100}>1$

Yes, he has more than 1 liter.

- 9. What she used in all = $\frac{6}{10} + \frac{25}{100}$ $=\frac{85}{100}=\frac{17}{20}$
- **10.** Ali has = $\frac{2}{10} + \frac{60}{100} = \frac{80}{100} = \frac{8}{10}$ liter. The empty of the vessel $=1-\frac{8}{10}=\frac{2}{10}$ liter = 2 tenths liter = 20 hundredths liter.
- **11.** What Laila read = $\frac{3}{10} + \frac{65}{100} = \frac{95}{100}$ of her book.
- **12.** The perimeter = $\left[\frac{3}{10} + \frac{3}{10}\right]$ $+\left[\frac{12}{100}+\frac{12}{100}\right]$ $=\frac{6}{10}+\frac{24}{100}=\frac{84}{100}$ cm

Answers of multiple choice questions

Unit 10 Assessments

Model

- b. B
- c. B

- 2. a. $\frac{75}{100}$
 - b. three and sixteen hundredths.
 - c. 57

- 4. a. x
- 5. The distance = $\frac{7}{10} + \frac{36}{100}$ $=\frac{106}{100}$ = 1.06 km

Model 2

- C. A

C. X

- a. tenths b. 6.08
- c. 2,170

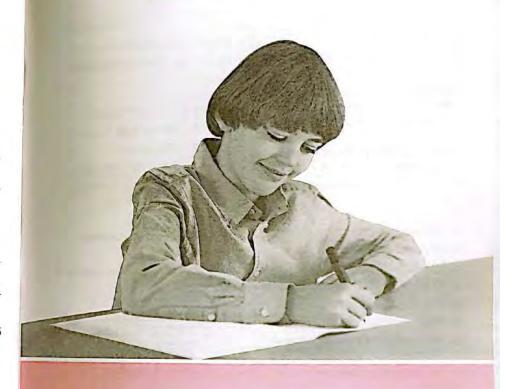
C. X

- b. V
- What Mostafa ate = 0.7 What his brother ate = $\frac{25}{100}$ = 0.25 Then, Mostafa ate more than his brother.

Answers of unit

Data with Fractions

» Concept 1: Creating and Analyzing Graphs



Concept 1

Creating and Analyzing Graphs

Exercise 23

1.

	Favorite	activities		
Drawing	Crafts	Sports	Reading	Singing
4	5	0	-	

b. Singing

- a. Sports
- c. 7
- d. 4
- e. Drawing and Crafts.

2.

- a. Lion
- b. Bear
- c. 13
- d. Elephant and Giraffe
- e. 13-4=9

3.

- [1] What is the most favorite flavore of ice cream?
- (2) What is the least favorite flavore of ice cream?

[Answers may vary]

4.

- a. 90 pounds April
- b. 80 pounds . February
- c. 80 + 50 = 130 pounds
- d. 40 + 50 + 70 + 90 + 50 = 300 pounds
- e. 60 + 80 + 70 + 20 + 30 = 260 pounds
- f. March

60

- g. Hany saved the most Enas saved the least.
- h. 90 20 = 70 pounds

5.

- a. National , 2006
- b. 20 + 200 = 220 visitors
- c. 100 + 200 + 20 = 320 visitors
- d. 220 100 = 120 visitors
- e. Arts in 2006 and History in 2005
- f. [100 + 200 + 20] [220 + 20 + 80] = 320 – 320 = zero

6.

- a. Riyadh
- b. 15
- c. 20 5 = 15
- d. 25 10 = 15

7.

- a. Primary 2
- b. Primary 3
- c. 100 20 = 80 students
- d. 60 + 20 = 80 students
- e. [60 + 90] [90 + 50] = 150 140= 10 students
- f. 35 + 120 + 170 + 190 + 120 = 635 students
- g. Because we compare between 5 grades.

[Answer may vary]

8.

Favor	ite sports	
Sport	Boys	Girls
Football	9	3
Basketball	5	2
Soccer	4	13
Tennis	6	6

First :

- b. 12
- a. 3
- d. Basketball

second:

- a. T
- b. T d. F
- c. F
- 9. a. 10
- b. 4
- c. Wed and Sun.
- d. Girls study more than boys by [420 385] = 35 min.
- e. Fri

10.

- a. 70 50 = 20 girls.
- b. 2
- c. 2001
- d. Boys play sports than girls by [230 195 = 35 boys]

11.

Table 1: Yes, because we compare between Max. and Min temperatures.

Table 2: No, because it is not comparing between 2 items.

Table 3: Yes, because it is a compare between boys and girls.

12.

- a. bar graph , pictograph.
- b. double bar graph.
- c. double bar graph.

Answers of multiple choices questions

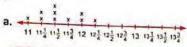
- . A
- 2. B
- 3. B

- 4. A
- B 6. A
- 7. B 8. B

Exercise 24

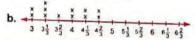
First Line plot

1.



Key Each × represents 1 child

- 1. Weights of children in kg
- 2.11 ½ kg
- 3.11,11 $\frac{3}{4}$ and 12 $\frac{1}{4}$ kg



(Key) Each × represents 1 tree

- 1. Heights of trees in meters
- $2.3\frac{1}{3}$ m $3.3\frac{2}{3}$ m



(Key) Each × represents 1 child

ages of nursey's kids

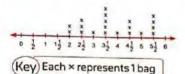
- a. 3 children b. 1 child
- c. 8 children d. 3-1=2 children

62

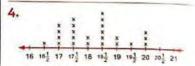
e. 14 children

3.

- a. Line plot: weight of our school bags , minutes spent playing outside , our shoe sizes ; number of people in our families , our heights and distance from home to school.
- b. Weight of our school bags in kilograms



[Answer may vary]



(Key) Each × represents 1 student

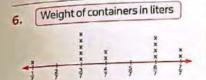
- a. 24 students
- b. Least mark is 16 1/2 , highest mark is 20
- c. 18 1
- d. 2 students
- e. 5-3=2 students
- f. Most of students got less than 19. [Answer may vary]

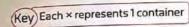
Distance from home to school in kilometers

(Key) Each × represents 1 student

- a. 11 students
- b. 1 km
- c. 5 km [1 km]
- d. 4 km
- e. $\frac{1}{5}$ km and $\frac{3}{5}$ km
- f. Most of students live far from the school.

[Answer may vary]

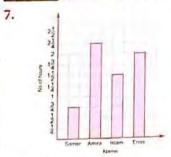




- b. 2 Land 5 L
- c. 14 containers
- d. 6 containers
- e. 4 containers
- f. Most of containers hold more than 1 liter.

[Answer may vary]

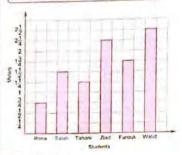
Breaking the bar Second



- a. Amira
- b. Samer
- c. 1 1 hours
- d. 6 1 hours
- e. 3 hour

8.

Part 1 Covered distance by the ball



Question 1:

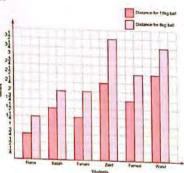
Who rolled the farthest? Walid

Question 2:

What is the difference between Ziad and Rana ? 1 1 m

Part 2

a.

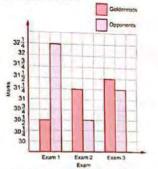


- b. Rana and Salah
- c. Ziad
- d. 6 m
- e. They would roll the ball farther than the roll of the 8 kg ball.
- f. The total distance of Salah and Tahani = $1\frac{1}{2} + 2 + 1\frac{1}{4} + 2 = 6\frac{3}{4}$ m [Answer may vary]
- 9.
- a. Answers may vary
- b. Sample answer: Temperatures in different cities.

Temp	Cairo	Alex	Port Said	Souhag	Luxor
High	1 18	21	22	17	23
Low	7	10	12	8	10

10.

The suitable type of graph is a double bar graph , because it compares two related sets of data.



- a. Goldenrods
- b. Goldenrods

4.

The letter 5

27 times

· Analyze by yourself.

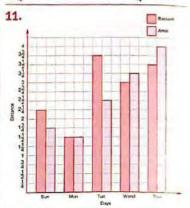
· Write by yourself.

5.

Number of goals

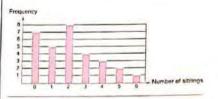
3 had the highest frequency.

- c. $\frac{3}{4}$ mark
- d. 62 3 marks

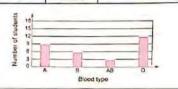


- a. Tuesday
- b. Monday
- c. Sunday
- d. 13 kilometers
- e. 14 kilometers
- f. Wednesday

	- Consult	inlect	noice c	uestions	6.	Nu	mber of siblin	igs
wers	ormuce	Ψ.	2183	uestions		Number	Tally	Total
-	2.	D	3.	В		0	HI II	7
С		c	6.	A		1	IHI	5
C	5.	_				2	HAT III	8
	Exer	cice	25	3	1	3	1111	4
	Exel			9		4	111	3
					1	5	11	2
					1	6	1	1
_					,			



Blood types					
Blood type	Tally	Number of students			
A	HATTINI	9			
В	HHI	6			
AB	111	3			
0	III NAT 181	12			



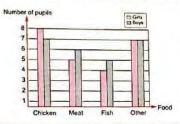
How we get to	school	
Mode of Transportation	Tally	Total
Bus	11 114	7
Walk	HI III	8
Car	HI HI	10
Other	1111	4

How we get to school		
Mode of Transportation	Tally	Total
Bus	11 114	7
Walk	HI III	8
Car	HI HI	10
Other	III	4

Number of students

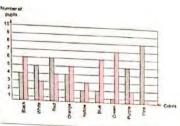
9.

-	Our favorite food	
Food	Girls	Boys
Chicken	8	7
Meat	5	6
Fish	4	5
Other	7	7



10.

30 30 U	To	tal
Colors	Boys	Girls
Black	6	4
White	3	5
Red	4	6
Orange	5	4
Yellow	3	2
Blue	6	2
Green	7	1
Purple	2	5
Pink	1	8



11.

- a. Line plot or bar graph
- b. Double bar graph
- c. Bar graph
- d. Bar graph
- e. Double bar graph
- f. Bar graph
- g. Bar graph or line plot
- h. Bar graph
- i. Double bar graph
- j. Line plot or bar graph

Answers of multiple choice questions

- 3. B
- 5. B 6. D C
- 8. B 7. C

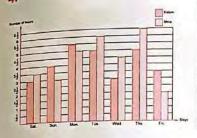
Unit 11 Assessments

Model

b. C c. C a. C

- a. Yasmin
 - **b.** 20 10 = 10 marks
 - c. Jody

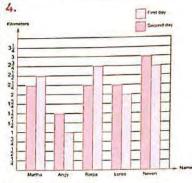




2 Model

- 1. a. C
- b. C
- 2. a. 15 + 30 + 20 = 65 girls
 - b. 25 boys
- c. pizza
- 3. a. 18
- b. 9
- c. yellow
- d.9-4=5

c. C



- a. Rogia and Lores
- b. $2\frac{3}{4} 1 = 1\frac{3}{4}$ km

Cumulative Assessment

7

1.

- 1.
- a. 13
- c. 3
- b. 29 d. 900 R 2
- e. 6

f. 10

- 2.
- a. 6

- b. 8 d. 22
- c. 13 e. 33
- f. 15

- 3.
- a. C
- c. B

- d. D
- e. A

b. A

f. B

4.

The number of microbuses

- $= (330 154) \div 8 = 176 \div 8$
- = 22 microbuses

Unit 9

Cumulative Assessment

- 1.
- a. C
- b. D
- c. A d. B

- 2.
- a. X

C. V

- 3.
- a. $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$
- $\frac{3}{4} = \frac{1}{4} + \frac{2}{4}$
- b. $\frac{4}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
- 4.
- The number of groups = $288 \div 8$ = 36 groups.

Cumulative Assessment

- 1.
- b
 - b. A c. C
- a. C d. C
- e. A
 - A f. D
- 2.
- a. $\frac{47}{8}$
- b. $\frac{23}{7}$
- 3.
- b. 3 3 c. 6
- 4.
- a. —

a. 2 1/3

b. —

c. 23

- c. ----1
- d. → 2

Cumulative Assessment

, b.

- a. 75 = 8
- b. 2²/₇
- c. $3\frac{4}{4} 2\frac{1}{4} = 1\frac{3}{4}$
- d. $3\frac{10}{8} = 4\frac{2}{8}$ f. $2\frac{5}{9} = 3$

- 2.
 - 44
 - b. 8 e. 4
- 3. a. [1] 800 b. [1] 26
- (2) 528 (2) 42
- 4. The left = $5\frac{3}{4} 3\frac{1}{4} = 2\frac{2}{4}$ cakes.
- 5.
- b. v C. v
- d.x e.v f.v

Cumulative Assessment

- 1.
- a.> b.< c.> d.>

g. <

- e. < f. >
- 2.
- a.C b.C c.B d.D e.A
- 3.
- a. The ascending order is
- $\frac{1}{10}$, $\frac{3}{10}$, $\frac{6}{10}$, $\frac{7}{10}$, $\frac{9}{10}$
- b. The descending order is
- $\frac{11}{3}$, $\frac{11}{4}$, $\frac{11}{5}$, $\frac{11}{7}$, $\frac{11}{8}$

4.

10

c. 1

f. 14

h. <

- a. 544
- b. 10 206
- c. $\frac{9}{9} = 1$
- d. 93 R 2

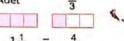
Cumulative Assessment

- 1.
- a. 4 b. 16 c. 9
- 2.
- a. $\frac{1}{2}$ \longrightarrow 3. $\frac{2}{4}$
- d. $\frac{1}{4}$ \longrightarrow 1. $\frac{3}{6}$
- e. $\frac{4}{6} 5.\frac{2}{3}$
- 3.
- a. C
- b. C
- c. A d. C

4.

Sara $1\frac{1}{3}$

Adel



- $1\frac{1}{3} = \frac{4}{3}$
- They eat the same amount.

Cumulative Assessment

- 1.
- a. > b. < c. >
- d. > e. > f. <

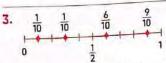
2.

c. 33 a. 113 R 3 b. 7,550

d. 2 1

e. 7 5

f. 1,377



a. closest to 1/2

b. closest to 1

c. closest to zero

d. closest to $\frac{1}{2}$

 $b.\frac{7}{7},\frac{5}{6},\frac{5}{10},\frac{1}{9}$

5.

d. X

f. X

Cumulative Assessment

 $\mathbf{b}.\,\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$

 $f. \frac{6}{10} = \frac{3}{5} = \frac{9}{15}$

(Answers may vary)

a. A

c. C b. A

d. C

e. C

3.

a. V

b. X

C. X

×3

 $\frac{3}{4} = \frac{9}{12}$

There are 9 choclate cake.

Cumulative Assessment

1. a. A

2. a. 8 3

b. 6 1/5

3. a.>

4. 6

5. a. 2×1

c. 3 × 1

b. 6 × 1/5

d. $4 \times \frac{1}{10}$

c. B

Cumulative Assessment

1. a. C b. B

> d. D e. C

b. $\frac{17}{5}$ c. $\frac{7}{9}$ 2. a. $4\frac{4}{8}$ e. $\frac{4}{14} = \frac{6}{21} = \frac{8}{28}$

(Answers may vary)

3. 9/10

2

Unit 10

Cumulative Assessment

c. 0.15

a. 0.08 d. 0.35 b. 0.3 e. 0.01

f. 0.7

c. $\frac{18}{100}$

C. X

c. 2 2

b. 9 f. 6 $e.\frac{4}{10}$

2. a. 8/10

d. 74

1.

b. X e. X

a. 5 %

b. $4\frac{3}{5}$ e. 39

5. 3

d. 9

18 **Cumulative Assessment**

a. 0.4 , Tenths

b. 0.03 , Hundredths

c. 1, Ones

d. 200 , Hundreds

a. Seven and eighteen hundredths

b. One and seventy-three hundredths

c. Six and two hundredths

3.

a. 5.62

b. 7.08

c. 4.74

a. V

b. X

e. X

C. V f. V

5.

d. X

a. $1\frac{7}{9}$

b. 7,376

c. 175

d. 14,110

Cumulative Assessment

a. $1\frac{7}{10}$

b. $5\frac{24}{100}$

c. 11 87

d. $2\frac{5}{100}$

e. 14 9

f. $20\frac{23}{100}$

19

a. 20

b. 370 e. 4.2

c. 1,040 f. 735

d. 7.9

 $\frac{5}{15}$, $\frac{5}{12}$, $\frac{5}{11}$, $\frac{5}{10}$, $\frac{5}{7}$

5. • 70.2 cm

• 702 Tenths

Cumulative Assessment

a. 30

b. $\frac{7}{10}$

 $d.\frac{9}{10}$

 $f. \frac{1}{10}$

2.

- a. A
- c. A b. D
- d. C
- 3.
- a. $\frac{8}{9}$
- c. 48 b. 219
- e. 30 d. 9R5
- a. 3 + 0.7 + 0.09
- b. 6+0.04 c. 4+0.8+0.09

Cumulative Assessment

e. D

- c. > b. < a. >
- f. < e. = d. >
- h. >
- C. V
 - f. V e. X d. X
- 3.
- 18 4 cm

4.

Nermine

- 5.

Cumulative Assessment

- b. $2\frac{91}{100}$ c. $9\frac{4}{5}$
- a. 5 71 100 d. $1\frac{26}{100}$ e. 14,257 f. 65 R1
- 2.
- b. seven and twenty-seven hundredths
- c. 9
- d. $1\frac{2}{3}$
- e. 6 6

c. B

- f. Hundredths
- a. B
 - b. D
- e. B d. A
- 1 5 meter

Unit 11

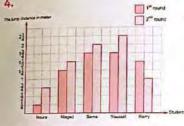
Cumulative Assessment

- c. A
- b. B 1. a. D d. B e. C
- C. X b. V 2. a. x d. x
 - e. V
- b. 16 c. Mango 4. a. 14
 - d. Orange e. Watermelon g. 6
 - f. 23

Cumulative Assessment

- c. C b. B 1. a. C
- f. C e. C
- b. X c. X a. X e. V
- 3. a. 2,438 b. 107 c. 1/2 d. 30





- a. Sama and Youssef b. Youssef
- c. Ramy
- $d.\frac{1}{2}$ meter

Cumulative Assessment

- c. B
- 1. a. D f. B d. B e. C
- C. V a. V b. X
 - d. V e. X
- 3. $\frac{2}{4}$, $\frac{2}{5}$, $\frac{2}{7}$, $\frac{2}{9}$, $\frac{2}{10}$
- 4.

Hours spen	t doing dai	ly chores
Number of hours	Tally	Total
1/2	1	1
1	- 11	2
1 1/2	IIII	4
2	HHII	6
2 1/2	111 III	8
3	HH .	5
3 1/2	111	3
4		2
4 1/2	1	1

Hours spent doing daily chores



- (Key) X = 1student
- a. 5 b. $2\frac{1}{2}$ hr. c. 25 d. 32

Answers of Final Assessments



Model 1

1. a. B b. D c. B e. B f. D

b. x c. v

3. a. 3 b. 4 c. ones e. 3 f. 0.06

4. a. -2 b. -1 d. -3

b. > d. <

6. 20 days

6. 20 d5, 7. a. $1\frac{1}{5}$ b. 4 c. $2\frac{11}{100}$

8. a. $3\frac{4}{10}$ b. $2\frac{2}{100}$

9.

a. sport	untivhall	handball	swimming	football
pupils	Vollysse	10	8	6
boys	6	10	12	2

c. 6

Model

1. a. C b. C c. C

d. C e. C

2. a. x b. v c. x d. v e. x f. v

3. a. 3.33 b. $\frac{13}{6}$ c. $\frac{25}{100}$

d. 90 e. 128 ÷ 5

4. a. > b. = d. <

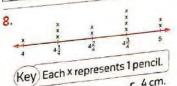
5. $\frac{4}{10} = 0.4$

6. a. 8,873 b. 3,501 d. 510

c. 351

7.

Model	Fraction	Unit fraction	the fraction
a	2 4 5 6	1 6	$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$



b. 5 cm. c. 4 cm.

a. →2 b. →1 d. →4

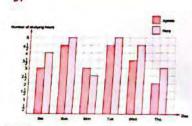
Model 3

1.	a. C	b. B	c. D
	d. B	e. C	f. C

2.	a. X	b. 🗸	c. 🗸
	4 4	0 Y	E. V

3.	a. 23	b. 33	c. 6/7
	d. 8	e. 5	f. 3.03

- 6. a. 8,775 b. 548 c. 1116 d. 90 R 5
- 7. 12
- 8.
- a. 2.19
- b. two and nineteen hundredths
- 9.



Model 4

1.	a. 6	b . 3,000	c. 33
	d. 6	e. 24	f. 5.05
2		h e	

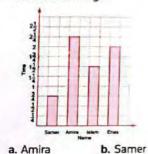
d. 🗸	✓ e. x	f. x

3.	a. A	b. D	C. C
	d. C	e. C	f. A

4.	a. — + 2	b. — 3
	c. — 4	d. — 1
_		

5.	a. >	b. <
	c. >	d. <

- 6. 6.42,6+0.40+0.02
- 7. 9 birds.
- 8. a. 56 b. 47,894 c. 113 d. 2,010
- 9. The internet usage



a. Amira
c. 1 ¹/₄ hour

.

Model 5

	a. 0.2	b. 16	c. 5
1.	a. U.L		f. 300
	19	e. 2	1. 500

2 a. A	b. B	c. C
2. a. A d. C	e. A	f. D

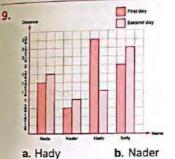
- 11	b. 🗸	c. X
3. a. v	e. X	f. X

-	a 2	b. ——1
4.	c. —-5	d. → 3
	-4	

5.	a. >	b. <
Э.		d. >
	c. >	u. >

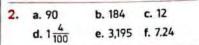
6.	a. 1,757	b. 5,174
	c. 325	d. 8,837

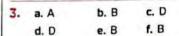
- 7. 5 m.
- 8. Mathew.

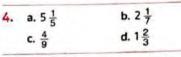


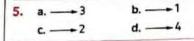
Model 6

1.	a. 🗸	b. X	C. V
	d. x	e. 🗸	f. X



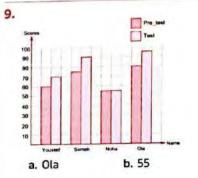








- 7. 7 paints
- 8. $a.\frac{5}{4},1\frac{1}{4}$ $b.\frac{9}{6},1\frac{3}{6}$

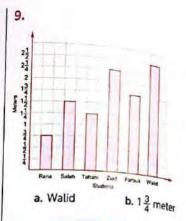


c. Noha

Model 7

- c. D b. A 1. a. C f. D e. C d. D
- 2. c. 1,006 R1 b. 7 a. 0.03 e. 35 f. 1 d. 32
- 3. C. V b. V a. V f. V e. X d. X
- 4. b. < a. > d. > c. =
- 6. 3 biscuits and the left is 1
- 7. a. 10,925 b. 3,458 c. 377 d. 125
- a. Three and twenty-seven hundredths
- b. 3 Ones, 2 Tenths and 7 Hundredths
- c. 3 + 0.2 + 0.07

82

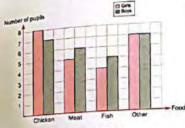


Model 8

- 1. a. 6 35 b. 50 d. 2 e. 45 f. 1 2. a. X b. v C. X d. X e. V f. X
- 3. a. C b. D c. D e. B d. A f. C
- d. —→3
- 5. a. > b. = d. < c. = 92 cm²

- b. Four and 58 Hundredths b. Four 81,5 Tenths and 8 Hundredths c.4+0.5+0.08
- b. 2 2/5 d. 53 c. 30 Boys Girls





9 Model

- c. X b. V a. X f. V e. X c. D b. C 2. a. C e. C f. D d. B
- a. 40nes ,5 Tenths ,2 Hundredths c. 45 d. 7 b. 520
- f. 0 e. 11

- b. < 5. a. = d. > c. = 6. b. 1,416 7. a. 1,589 d. 12,563 c. 80 R5 $b.\frac{1}{9},\frac{2}{4},\frac{11}{12}$
- 9. a. 11 ½

8. $a.\frac{1}{6}, \frac{5}{10}, \frac{8}{9}$

b. 11, 11 $\frac{3}{4}$ and 12 $\frac{1}{4}$ 10 Model

- c. 2 + 0.50b. 10 1. a. 6 f. 6 e. 79 d. 9 c. X b. V 2. a. V f. V e. X d. V c. C b. B a. C f. D e. C d. B
 - b. = a. > d. > c. >

Answers

8.

a. 0.80 > 0.09

Ones	Decimal point	Tenths	Hundredths
0	,	8	0
0		0	9

b.
$$0.10 = 0.1$$

Ones	Decimal point	Tenths	Hundredths
0	4	1	0
0	. 1	1	

9.

Favo	rite sport	S
Sport	Boys	Girls
Football	9	3
Basketball	5	2
Soccer	4	13
Tennis	6	6

- a. 3 boys
- b. 12 students
- c. soccer
- d. Basketball